SONY - SP0491

SERVICE MANUAL
S E G
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SONY

CAMERA ADAPTOR

CA-55A/55AP

BETACAM

OPERATION AND MAINTENANCE MANUAL
1st Edition
Serial No. 10001 and Higher (USA/CANADA)
Serial No. 30001 and Higher (JAPAN)
Serial No. 40001 and Higher (EK)

For the customers in the U.S.A

WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

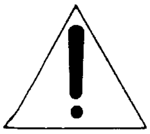
The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß die kameraadapter CA-55AP in Ubereinstimmung mit den Bestimmungen der BMPT-Amtsblatt Vfg 243/1991, Vfg 46/1992 funkentstört ist. Der vorschriftsmäßige Betrieb mancher Geräte (z. B. Meßsender) kann allerdings gewissen Einschränkungen unterliegen. Beachten Sie deshalb die Hinweise in der Bedienungsanleitung.

Dem Bundesamt für Zulassungen in der Telekommunikation wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Name und Anschrift des Herstellers/Importeurs:	Sony Deutschland GmbH Hugo Eckener Str. 20 D-5000 Köln 30

Hinweis

Gemäß der Amtsblätter des BMPT Nrn. 61/1991 und 6/1992 wird der Betreiber darauf aufmerksam gemacht, daß die von ihm mit diesem Gerät zusammengestellte Anlage auch den technischen Bestimmungen dieser Amtsblätter genügen muß.

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第1章　取り扱い操作

1-1. 概要

本機は、BVP-90をはじめとするベータカム・CCDカラービデオカメラ（BVP-5/50Jを除く。）と一体化し、トライアックスケーブルでカメラコントロールユニットCCU-355シリーズと接続するためのカメラアダプターです。

また、ベータカム・CCDカラービデオカメラとポータブルVTRを接続するためのアダプターとしても使用できます。（BVP-5/50Jも使用可）

本機は以下のような特長を持っています。

コンポーネント伝送方式

Y/R−Y/B−Y信号による伝送を行います。

感電防止機能

接続が不完全なとき、CCUからの高電圧供給が停止します。

各種入出力コネクターを装備

- ●リターンビデオ出力コネクター
- ●ワイヤレスレシーバーWRR-28Lへの電源供給用DC出力コネクター
- ●リターンビデオ1、2切り換えのリモートコントロール用入力コネクター

1-2. 各部の働き

EARPHONE

インピーダンス8Ωのイヤホンを接続すると、VTRからの音声をモニターすることができます。

CALL

押すと、CCUおよびビューファインダーのレッドタリーランプが点灯します。
CCUのオペレーターを呼び出すときに使います。

INCOM LEVEL

インターカム受信音声のレベルを調整します。

TALK

ON	カメラマンの声がCCU側に送られる。
REMOTE	CCU側への声の送信は、カメラ本体またはレンズのVTR START/STOPボタンでON/OFFされる。

側板を開けてVA-80基板上のS1スイッチをRETURN側（工場出荷時はINCOM側）に切り換えると（詳細→「2.設置」）

- カメラ本体またはレンズのVTR START/STOPボタンで、リターンビデオ2信号のON/OFFをコントロールできます。
- TALKスイッチの機能は次のようになります。

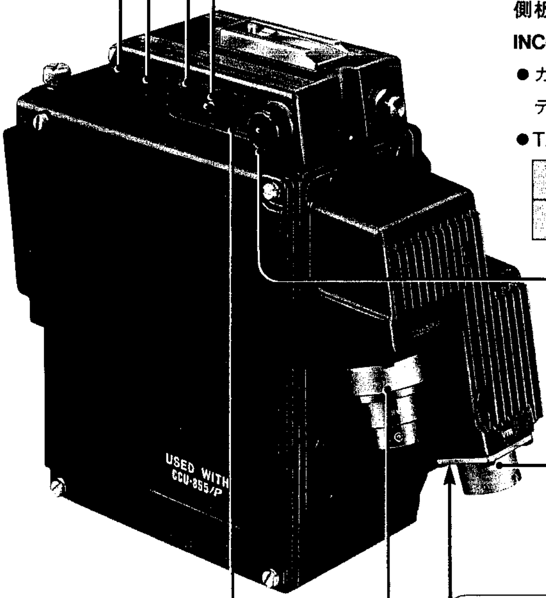
ON	カメラマンの声がCCU側に送られる。
REMOTE	カメラマンの声は送られない。

POWER

CCU	CCU接続時、電源が入る。
OFF	電源が切れる。
EXT (external)	電源が入る。（CCU接続時以外）

VTR

1-10(J)ページを参照してください。

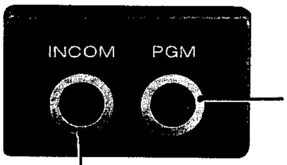


PGM (program) LEVEL

プログラム音声のレベルを調整します。

CCU-355/P

1-10(J)ページを参照してください。



PGM (program)

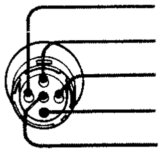
ヘッドセットのプラグを差し込むと、プログラム音声の受信ができます。

INCOM

ヘッドセットのプラグを差し込むと、インターカム音声の送受信ができます。

ヘッドセットのマイクがダイナミック型の場合、本機の側板を外してMICスイッチをD (dynamic) に切り換えてください。（工場出荷時はC (carbon)。）詳細は、「2.設置」をご覧ください。

DC OUT 120V

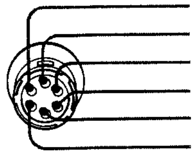


1:NC
2:120V（コールド）
3:
4:
5:120V（ホット）

DC OUT 10.5～17V

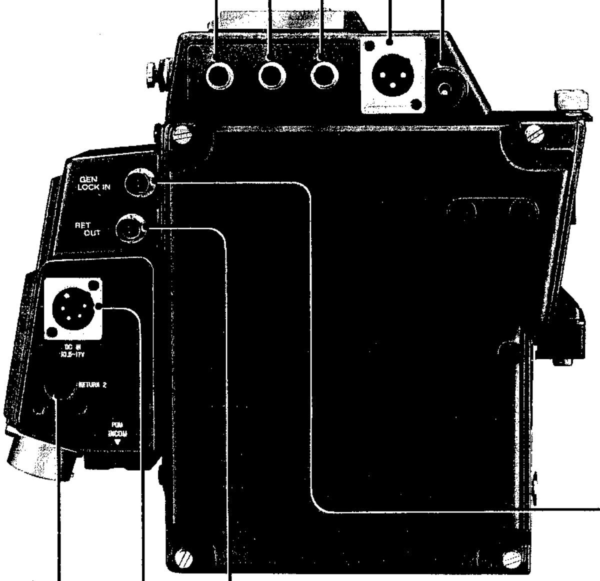
ワイヤレスレシーバーWRR-28Lに電源を供給するためのコネクターです。

RET CONT（return control）



1:INCOM MIC
2:NC
3:GND
4:NC
5:RET 1
6:RET 2

リターンビデオの選択とインターカムマイクのON/OFF切り換えの信号の入力コネクターです。



MIC IN

端子には、外部マイクを接続します。
スイッチは、出力する音声を切り換えます。

INT (internal)	カメラに付属しているマイクの音声を出力する。
EXT (external)	MIC IN端子に接続したマイクの音声を出力する。

外部電源供給方式のマイクを使うとき

本機の側板を外してMIC POWERスイッチをONに切り換えてください。MIC IN端子からマイクに電源（＋48V）が供給されます。（感電防止のため、MIC IN端子をメスに変更してください。）

通常のマイクを使用するときは、必ずMIC POWERスイッチをOFFに戻しておいてください。

詳細は、「2.設置」をご覧ください。

GENLOCK IN

外部同期信号用の入力コネクターです。
ただしCCU接続時は、このコネクターを使って外部同期をかけることはできません。

RET（return）OUT

通常、リターンビデオ1信号を出力します。RET 2ボタンを押している間は、リターンビデオ2信号を出力します。

DC IN 10.5～17V

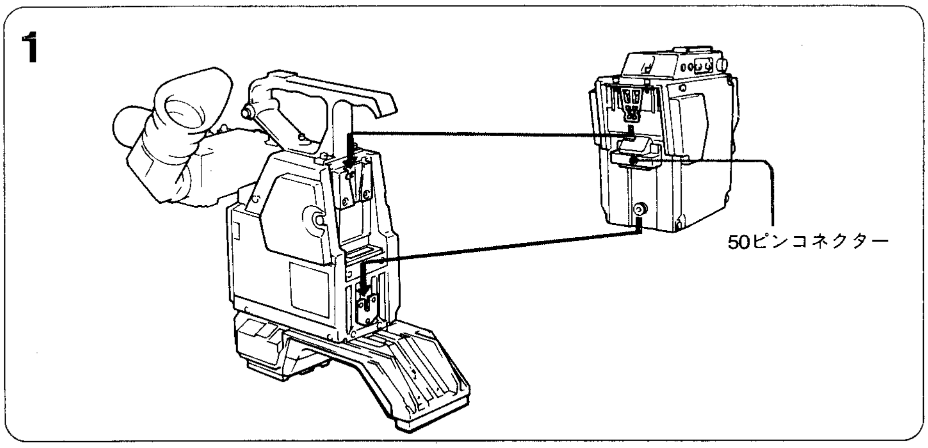
1-10(J)ページを参照してください。

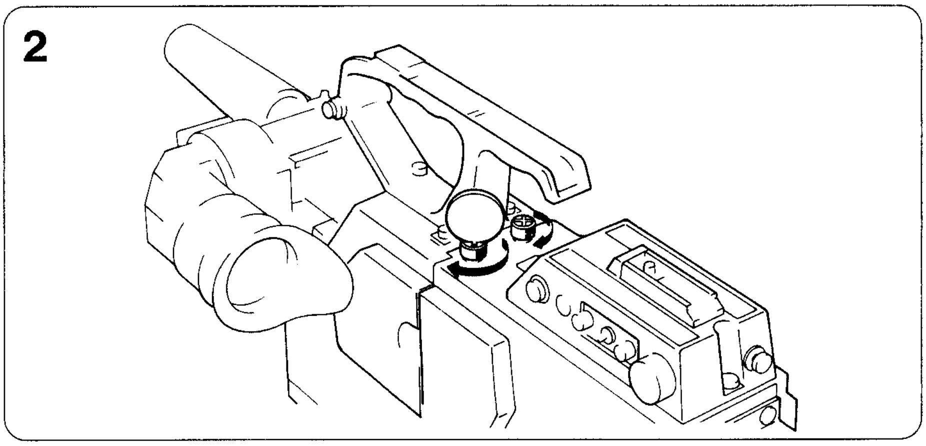
RET（return）2

押している間、CCUからのリターンビデオ2信号をビューファインダーで見ることができます。

1-3. 準備

カラービデオカメラ（BVP-90を除く）への取り付け

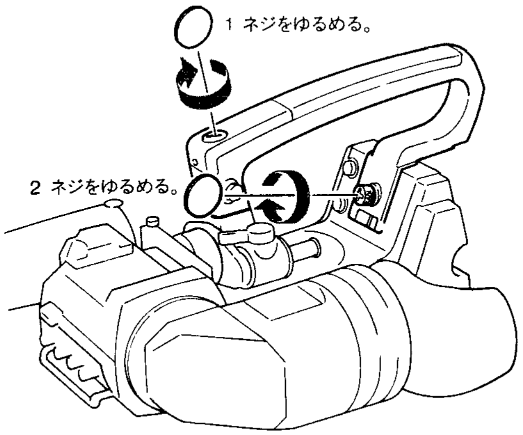

1
50ピンコネクター



組み立てると、50ピンコネクター同士が接続されます。このコネクターを通して、電源や信号の受け渡しが行われます。

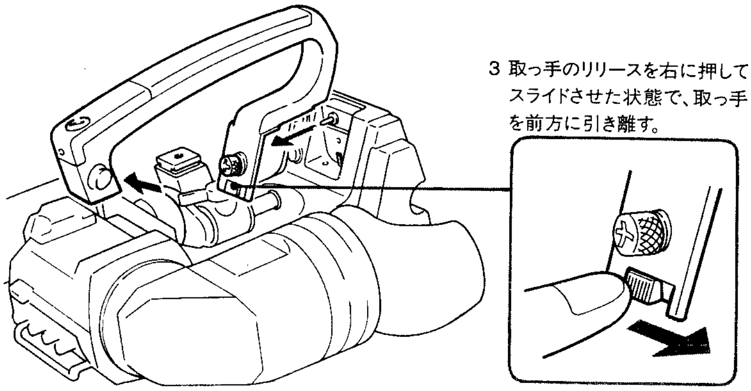
カラービデオカメラBVP-90への取り付け

1 カメラの取っ手を外します。



1 ネジをゆるめる。

2 ネジをゆるめる。

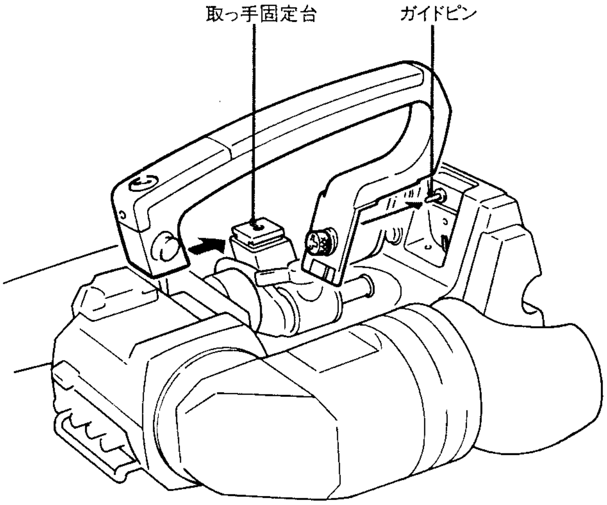


3 取っ手のリリースを右に押してスライドさせた状態で、取っ手を前方に引き離す。

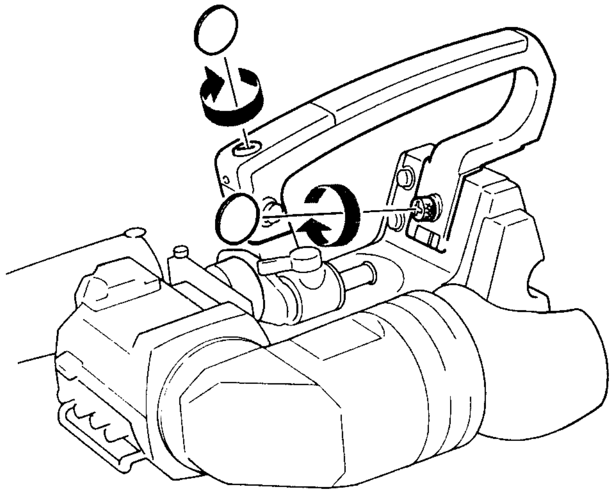
2 1-4(J)ページの手順に従って、CA-55Aを取り付けます。

（続く）

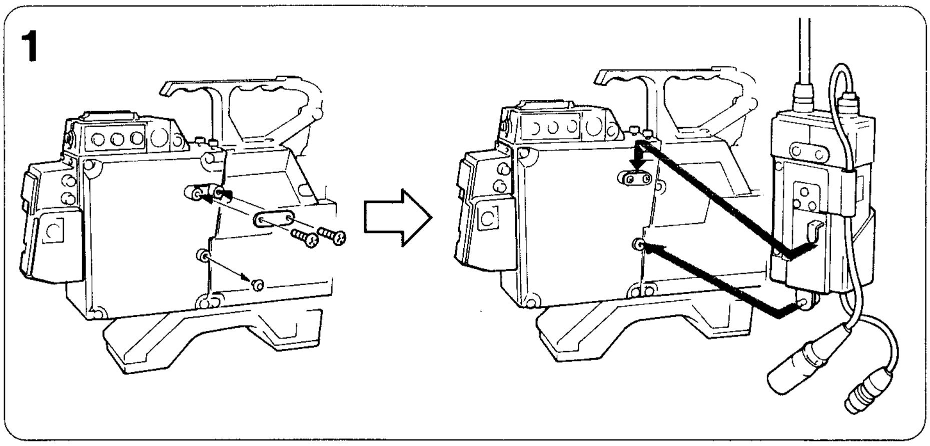
3 取っ手前端を取っ手固定台の前部にはめ、取っ手後部の穴をガイドピンにはめます。
取っ手後部のリリースがロックされたことを確認してください。

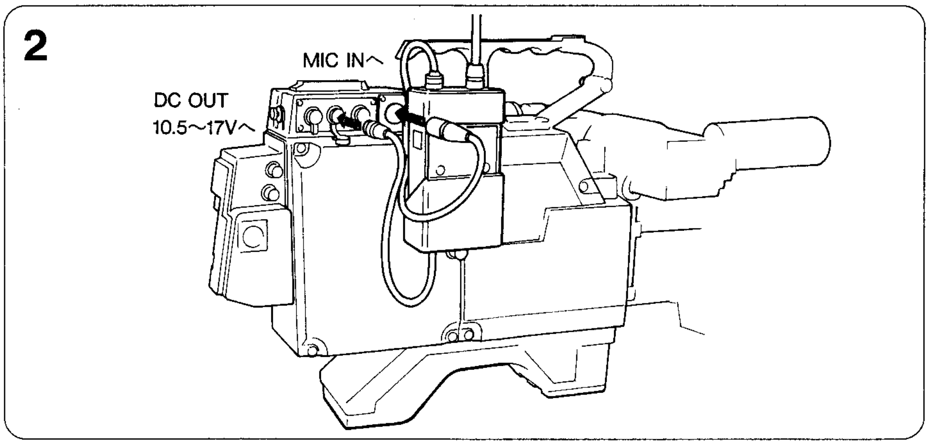

取っ手固定台
ガイドピン

4 コインなどでねじを締めます。

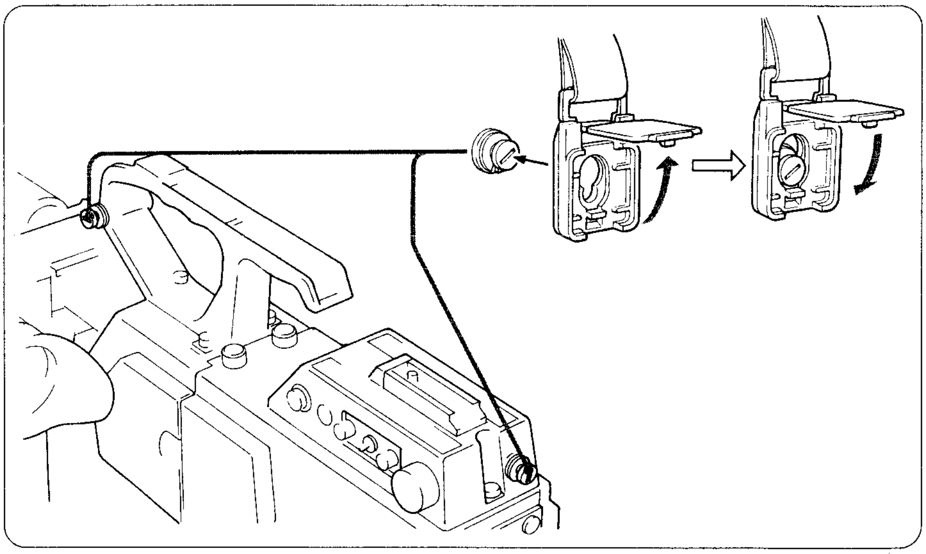


ワイヤレスレシーバーWRR-28Lの取り付け

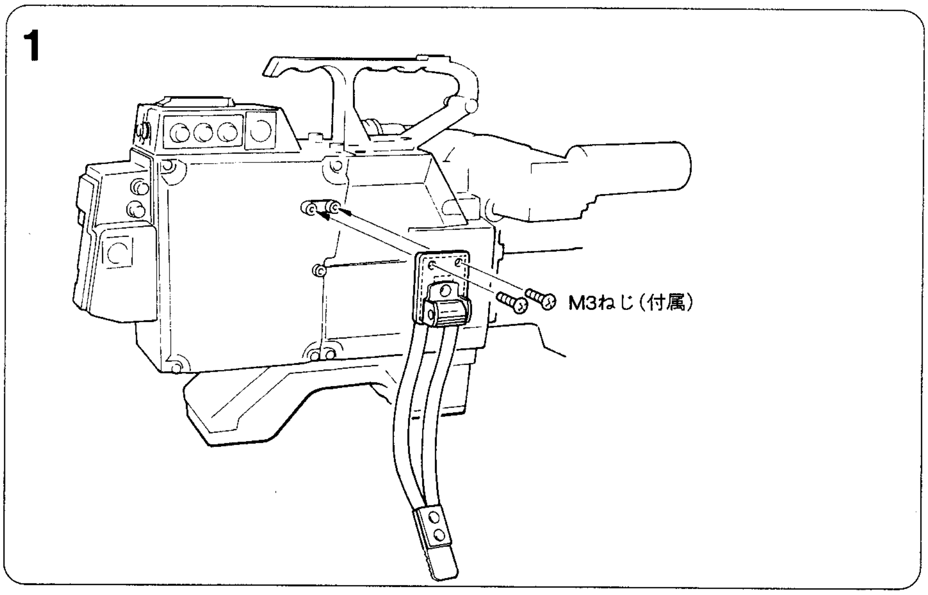


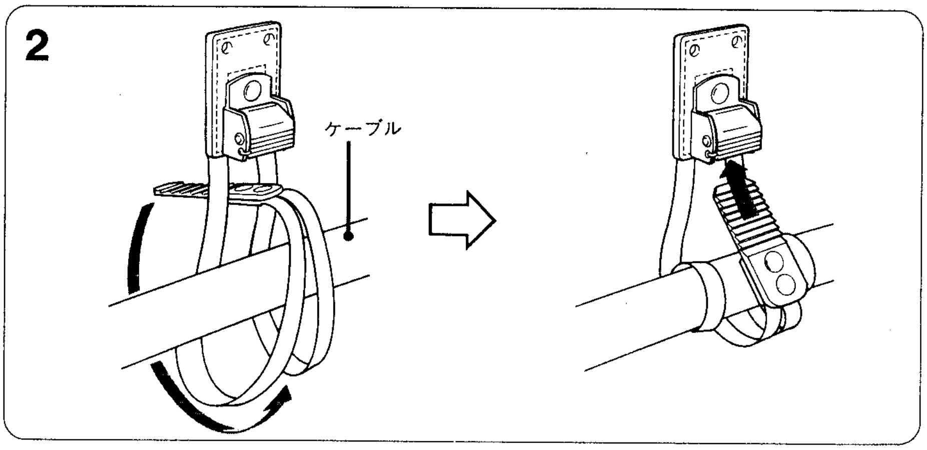

2
MIC INへ
DC OUT
10.5〜17Vへ

ショルダーベルト（付属）の取り付け

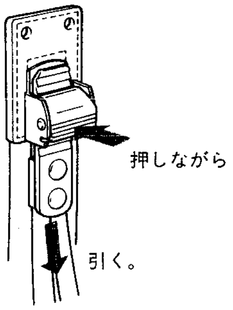


ケーブルクランプ（付属）の使い方

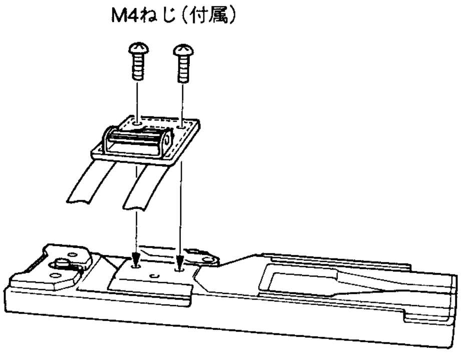




ケーブルを外すには



三脚アタッチメント(VCT-13、14)に取り付けることもできます。

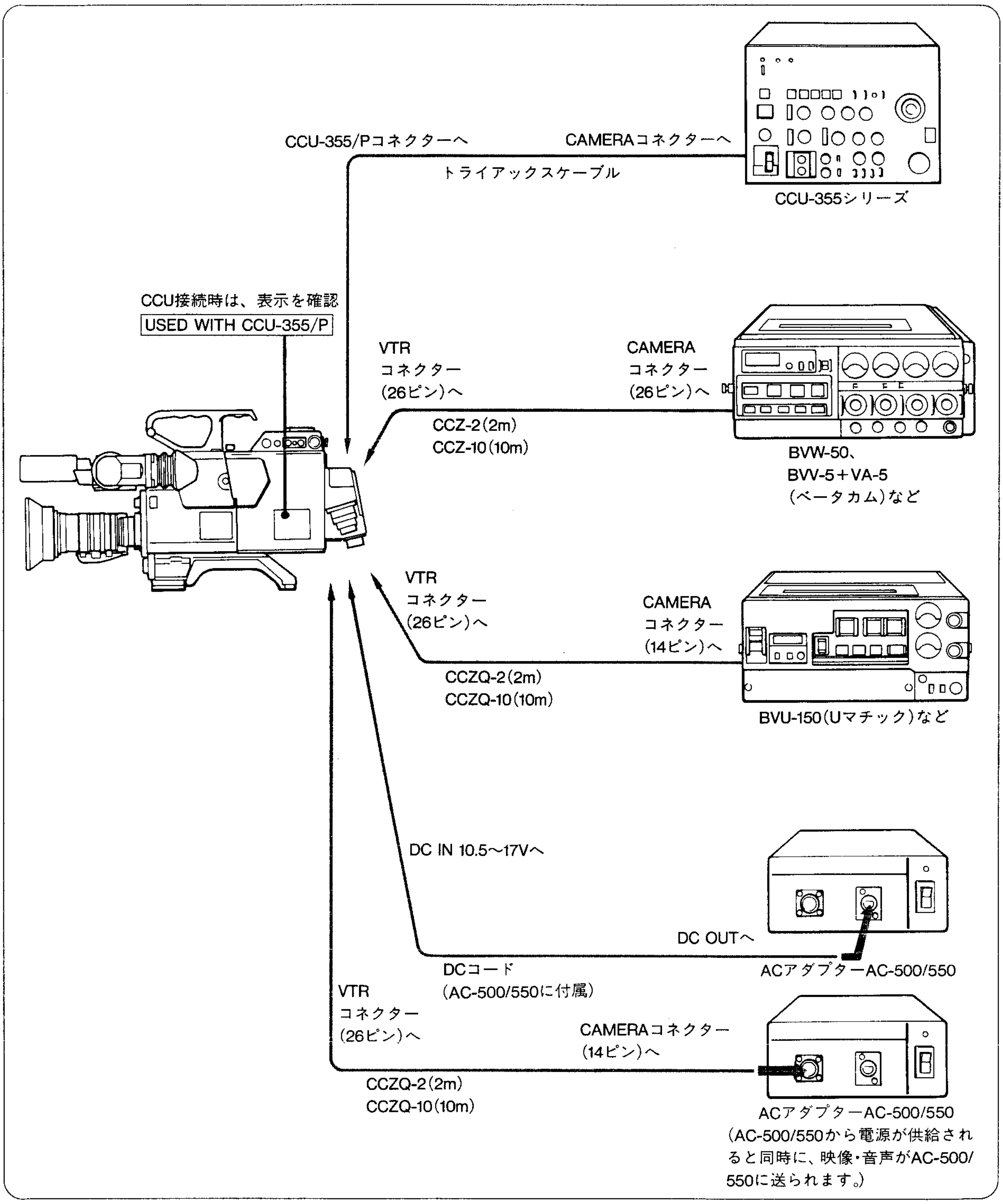


相手カメラの識別

CA-55Aは、結合した相手カメラがBVP-90であるか否かを識別する機能を備えています。BVP-90であると識別した場合は、自動的にBVP-90の機能に対応できるモードに入ります。また、内部スイッチで、あらかじめ相手カメラを選択しておくことも可能です。このスイッチの詳細については、「2. 設置」をご覧ください。

1-4. 接続

1-4-1 接続できる機器


CCU-355/Pコネクターへ
CAMERAコネクターへ
トライアックスケーブル
CCU-355シリーズ
CCU接続時は、表示を確認
USED WITH CCU-355/P
VTR
コネクター
(26ピン)へ
CAMERA
コネクター
(26ピン)へ
CCZ-2(2m)
CCZ-10(10m)
BVW-50、
BVV-5+VA-5
(ベータカム)など
VTR
コネクター
(26ピン)へ
CAMERA
コネクター
(14ピン)へ
CCZQ-2(2m)
CCZQ-10(10m)
BVU-150(Uマチック)など
DC IN 10.5〜17Vへ
DC OUTへ
DCコード
(AC-500/550に付属)
ACアダプターAC-500/550
VTR
コネクター
(26ピン)へ
CAMERAコネクター
(14ピン)へ
CCZQ-2(2m)
CCZQ-10(10m)
ACアダプターAC-500/550
(AC-500/550から電源が供給されると同時に、映像・音声がAC-500/550に送られます。)

ご注意

CCU接続時は、VTRコネクターやDC IN 10.5〜17Vコネクターには何も接続しないでください。接続すると、回路が正常に動作しません。

ただし、本機のHN基板上のS1(POWER SAVE)を「OFF」にすると、CCUとVTRを同時に接続して使用することが出来ます。詳細は、「2. 設置」をご覧ください。

BKP-501を装着していないBVP-50と一体化する場合

CCUと接続するときは、本機のIF基板上のスイッチ(S1の6番目)をOFFに切り換えてください。 詳細は、「2.設置」 をご覧ください。

1-4-2 電源について

CCU接続時

電源はCCUから供給されます。

VTR接続時

電源はVTRから供給されます。
ただし、DC IN 10.5〜17Vコネクターに電源機器（AC-500/550またはバッテリーパック）を接続すると、その機器からの電源供給に切り換わります。

バッテリーパックについて

●バッテリーパックBP-90

接続には、バッテリーケースDC-300またはDC-210を使います。

●バッテリーパックNP-1A（2個）

接続には、バッテリーケースDC-310を使います。

バッテリーケースの取り付けかたは、それぞれに付属の説明書をご覧ください。

ご注意

●ビューファインダーBVF-55は消費電力が大きいため、ポータブルVTRから電源を供給するときは使用できません。

●10mのケーブルでVTRと接続するときは、カメラ側に専用の電源が必要です。VTRのバッテリーから電源を供給すると、ケーブル長による電圧低下のため、バッテリーの持続時間が短くなります。

●DC-300の旧タイプの中に、取り付け用アタッチメントの形状が本機に合わないものがあります。その場合、アタッチメントの交換が必要ですので、ソニーのサービス窓口にご相談ください。

CCU・VTR同時接続時（POWER SAVEが「OFF」のときのみ）

●POWER SWが「CCU」のとき

電源はCCUから供給されます。

●POWER SWが「EXT」のとき

電源はVTRから供給されます。
ただし、DC IN 10.5〜17Vコネクターに電源機器（AC-500/550またはバッテリーパック）を接続すると、その機器からの電源供給に切り替わります。

詳細は、「2. 設置」をご覧ください。

1-5. 外部コントロールが可能な機能

本機とカメラを結合し、CCUを介して外部コントロール機器（MSU-350、RCP-3700シリーズなど）に接続すると、カメラの機能が、外部コントロール機器から操作できるようになります（BVP-5/50Jを除く）。ただし、外部からコントロールできる機能は、カメラによって異なるほか、同じ機能で選択範囲や操作方法が異なる場合があります。

下表に、外部コントロールの可能な機能のうち、BVP-90とBVP-7/70で違いがあるものを示します。

外部コントロールが可能な機能の相違点

機能	相違点	
	BVP-7/70	BVP-90
選択できるフィルター	CCフィルター	CC、NDフィルター
ガンマ値の選択	R、B個別[a]および マスター調整	R、G、B個別[a]および マスター調整
ホワイトバランスの調整	R、B個別[a]	R、B、G個別[a]
ブラックバランスの調整	R、B個別[a]および マスター調整	R、B、G個別[a]および マスター調整
ブラックセットの調整	—	R、B、G個別[a]
ホワイトクリップ回路のON/OFF	—	可
リニアマトリックス回路のON/OFF	—	可
ディテール回路のON/OFF	可	可
レンズエクステンダー使用の表示（コントロール側への表示）	—	可
リファレンスファイルの使用	—	可
セットアップファイルの使用	—	可
シーンファイルの使用	可	可
マスターゲイン値の選択	0、9、18dB	0、3、6、9、18、24dB[b]

a）手動調整のみ

b）これらの機能は、接続するCCU、RCPによって選択できる値が異なります。

ご注意

外部コントロール機器に接続した場合、カメラ側での操作はいっさいできなくなります。また、本来カメラ側で操作が可能であった機能については、選択範囲や調整方法が変わる場合があります。

データファイルについて

本機をカメラに取り付けてCCUを接続すると、外部コントロール機器からデータファイルを操作できます。基本的にリファレンスファイル、セットアップファイル、シーンファイルの3種類を作成できますが、カメラの種類や接続する外部コントロール機器の種類によっては、作成できない場合や操作方法が異なる場合があります。特に、BVP-90ではカメラ本体にファイルが保存されますが、BVP-7/70では本機内部に保存されますのでご注意ください。

ファイル操作の詳細は、各外部コントロール機器のオペレーションアンドメンテナンスマニュアルをご参照ください。

1-6. 仕様

入出力コネクター

GENLOCK IN	BNC型、1Vp-p、75Ω、不平衡
MIC IN	XLR型3ピン、オス、600Ω、平衡
RET CONT	6ピン
DC IN 10.5～17V	XLR型4ピン、DC10.5～17V
RET OUT	BNC型、1Vp-p、75Ω、不平衡
EARPHONE	ミニジャック、8Ω
DC OUT 120V	5ピン
DC OUT 10.5～17V	4ピン
INCOM/PGM	ダブルジャック
	マイク:カーボン/ダイナミック(選択可)
CCU-355/P	トライアックス
VTR	Z型、26ピン

その他

消費電力	7.5W
外形寸法	228×221×103mm(幅/高さ/奥行き)
質量	3kg
動作温度	−20～+45°C
保存温度	−20～+50°C
付属品	ショルダーベルト(1)
	ケーブルクランプ(1)
	M3ねじ、M4ねじ(ケーブルクランプ取り付け用)(各2)
	延長基板(1)
	オペレーション アンド メンテナンスマニュアル(1)

別売り品

リターンビデオセレクターCAC-6

仕様および外観は、改良のため予告なく変更することがありますが、ご了承ください。

SECTION 1 OPERATION

1-1. General

The CA-55A/55AP camera adaptor is used to connect a BVP-90/90P or other Betacam CCD color video camera (except for BVP-5P) to a CCU-355 series camera control unit using a triaxial cable.
You may also use this adapter to connect a Betacam CCD color video camera to a portable VTR (also usable with BVP-5/5PS).
Following are the characteristics of this unit.

Component signal transmission system

The component signal (Y/R–Y/B–Y) is transmitted through the triaxial cable.

Anti electrical-shock

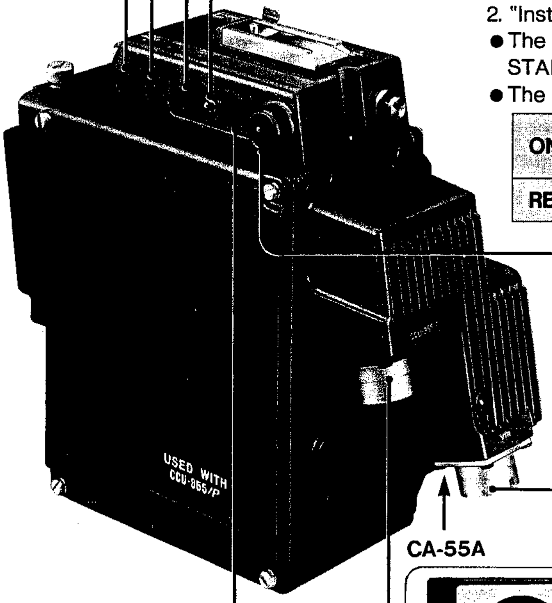
The camera control unit (CCU) does not supply the high voltage if the connection is not complete.

Variety of input/output connectors

This adaptor is equipped with:

- Return video output connector
- DC output connector to power a WRR-28L wireless receiver
- Signal input connector for remote-switching of return video 1 and 2

1-2. Function of Parts



EARPHONE
Used to monitor the sound from the VTR. Connect an 8-ohm earphone.

CALL
When this button is pressed, the tally lamps on the CCU and on the viewfinder light up and the CCU operator is called.

INCOM LEVEL
Used to adjust the volume of the intercom.

TALK

ON	The cameraman's voice is transmitted to the CCU.
REMOTE	Transmission of the cameramas's voice to the CCU is controlled by the VTR START/STOP button located on the camera or on the lens.

When you set the S1 switch on the VA-80 board to the RETURN position:

(This switch is factory-set to the INCOM position. For details, see 2. "Installation".)

- The return video 2 is switched on and off with the VTR START/STOP button located on the camera or on the lens.
- The TALK switch functions as follows:

ON	The cameraman's voice is transmitted to the CCU.
REMOTE	The cameraman's voice is not transmitted.

POWER

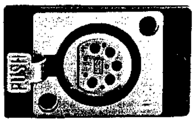
CCU	Power is turned on when a CCU is connected.
OFF	Power is turned off.
EXT (external)	Power is turned on when a CCU is not connected.

VTR
See page 1-10 (E).

PGM (program) LEVEL
Used to adjust the program audio level.

CCU-355/P
See page 1-10 (E).

CA-55A



INCOM/PGM (program)
Used to connect a headset to transmit/receive over the intercom and to receive the program audio.

When the microphone of the headset you are going to use is a dynamic microphone, detach the side panel of the CA-55A and set the MIC switch to the D (dynamic) position. (The switch is factory-set to the C (carbon) position.) For details, see 2. "Installation".

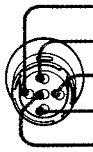
CA-55AP

PGM (program)
Used to connect a headset to receive the program audio.

INCOM
Used to connect a headset to transmit/receive over the intercom.

When the microphone of the headset you are going to use is a dynamic microphone, detach the side panel of the CA-55AP and set the MIC switch to the D (dynamic) position. (The switch is factory-set to the C (carbon) position.) For details, see 2. "Installation".

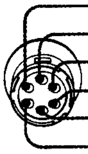
DC OUT 120V



1: NC (no connection)
2: 120 V (cold)
3:
4:
5: 120 V (hot)

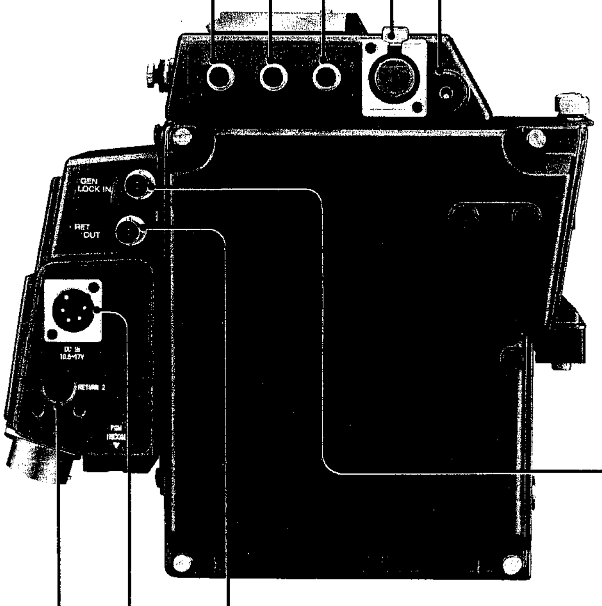
DC OUT 10.5~17V (10.5 to 17 V)
Supplies DC power to the WRR-28L wireless receiver.

RET CONT (return control)



1: INCOM MIC
2: NC (no connection)
3: GND
4: NC (no connection)
5: RET (return) 1
6: RET (return) 2

Used to input the signal for selecting the return video and for turning on/off the intercom microphone.



MIC IN
An external microphone can be connected to this connector.
The source of the output signal is selected with the switch.

INT (internal)	The microphone attached to the camera
EXT (external)	The external microphone

When a microphone which can be operated using a phantom power system is to be connected, detach the side panel of the CA-55A/55AP and set the MIC POWER switch to ON. Power (+48 V) will be supplied to the microphone via the connector.
Be sure to set the switch to OFF when a microphone of another type is to be used.
For details, see 2. "Installation".

GENLOCK IN
Used to input an external sync signal. However, when a CCU is connected, the camera signal does not lock to the external sync signal.

RET (return) OUT
Normally, outputs the return video 1 signal. However, while the RET 2 button is depressed, this outputs the return video 2 signal.

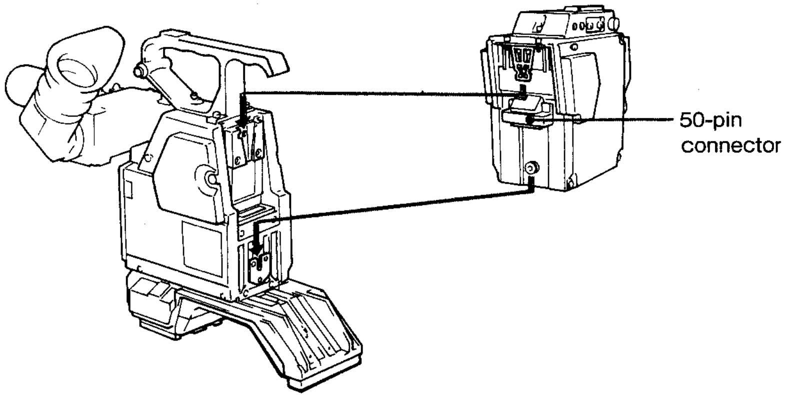
DC IN 10.5~17V (10.5 to 17 V)
See page 1-10 (E).

RET (return) 2
While this button is depressed, the return video 2 signal can be monitored on the viewfinder screen.

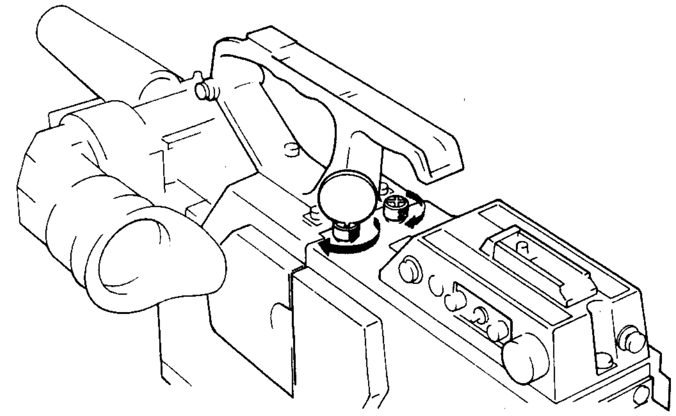
1-3. Preparation

Attaching the CA-55A/55AP to the Camera (except for BVP-90/90P)

1



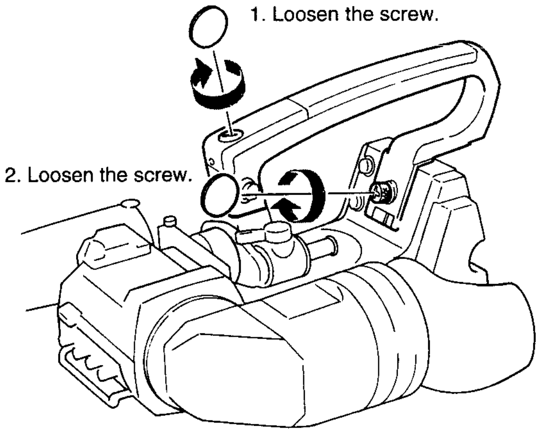
2



When this unit is mounted on the camera, the 50-pin connector of one unit is connected to the 50-pin connector of the other.

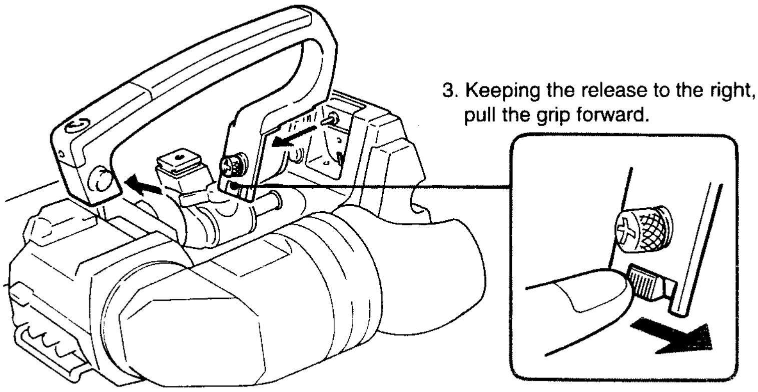
Attaching the CA-55A/55AP to a BVP-90/90P

1 Remove the camera grip.



1. Loosen the screw.

2. Loosen the screw.

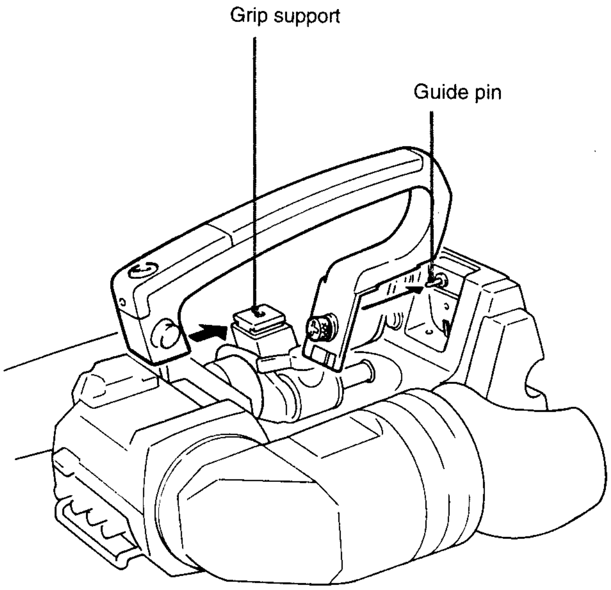


3. Keeping the release to the right, pull the grip forward.

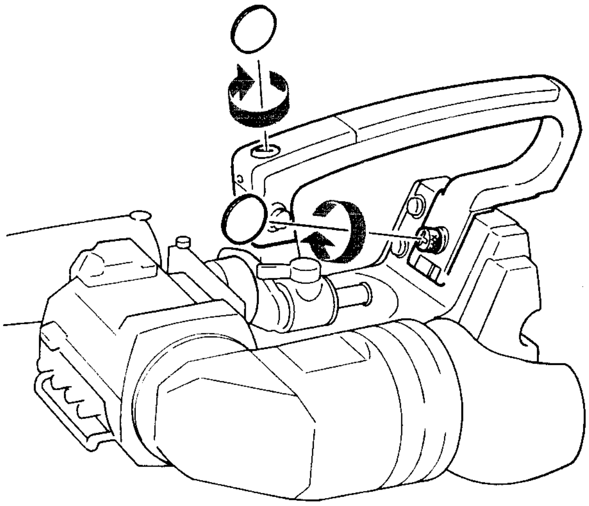
2 Attach the CA-55A/55AP, following the procedure on page 1-4(E).

(continued)

3 Attach the front end of the grip to the front part of the grip support, and slide the guide pin into the hole at the rear part of the grip.
Confirm that the release at the rear end of the grip has locked.

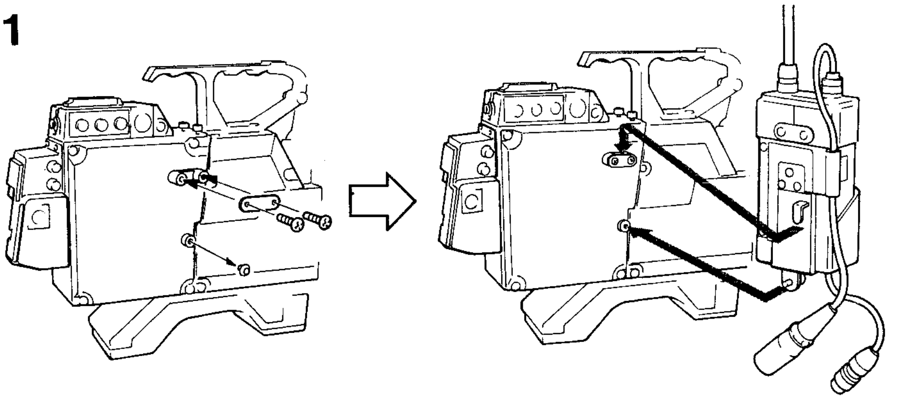


4 Tighten the two screws.

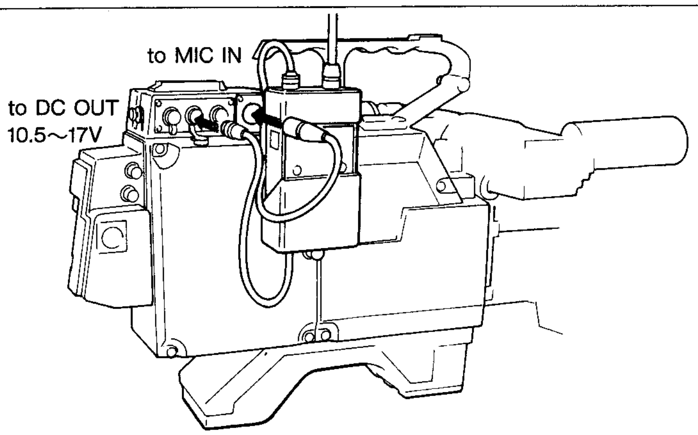


Attaching a WRR-28L wireless receiver

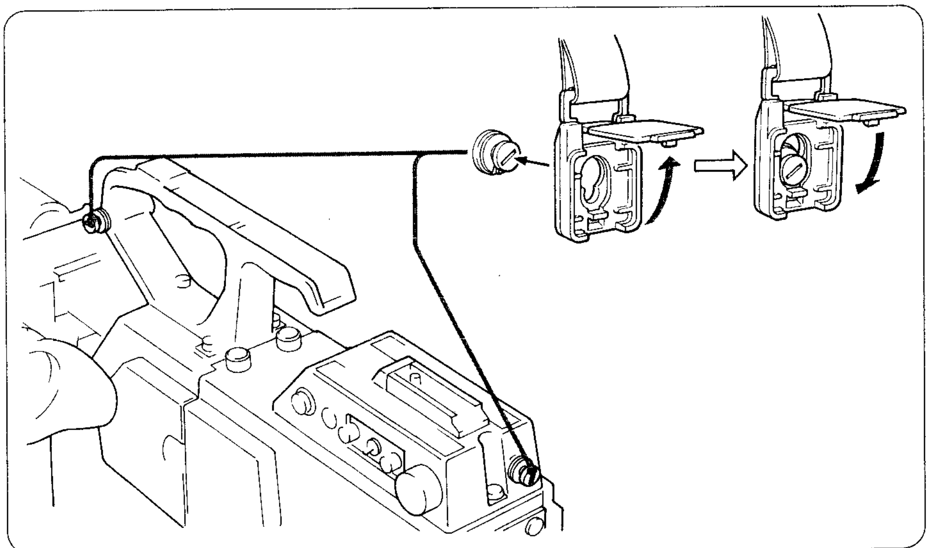
1



2

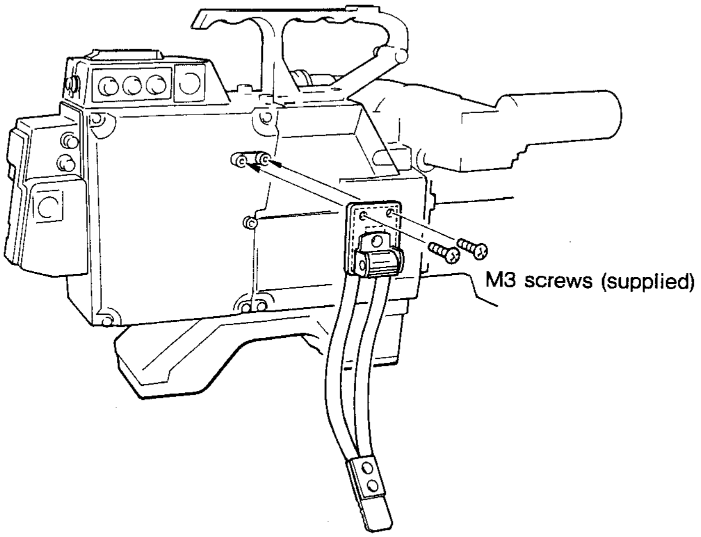

to MIC IN
to DC OUT
10.5~17V

Attaching the supplied shoulder strap

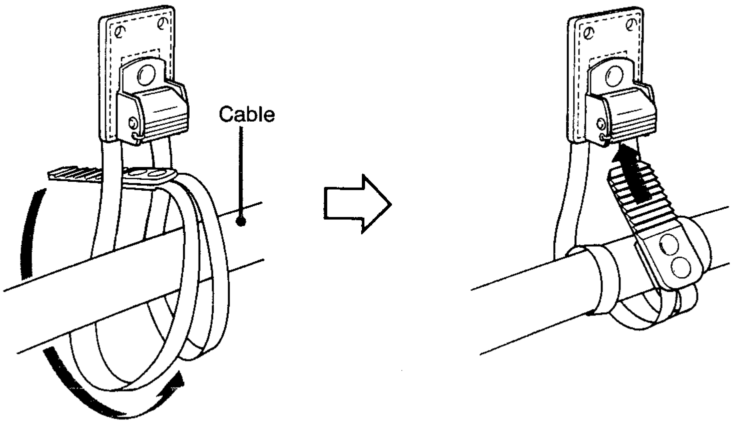


Using the supplied cable clamp

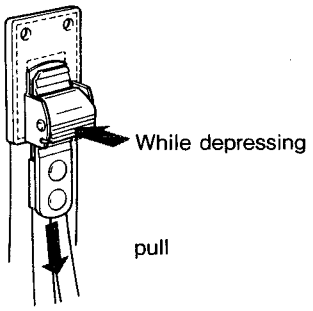
1


M3 screws (supplied)

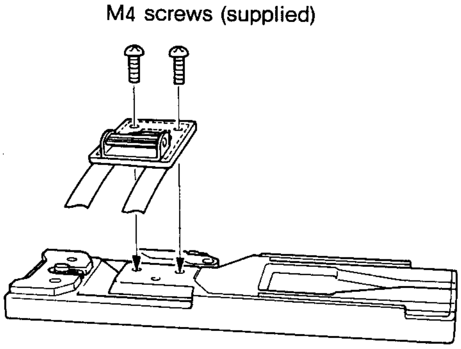
2



to detach the cable



Also attachable to the VCT-13/14 tripod attachment

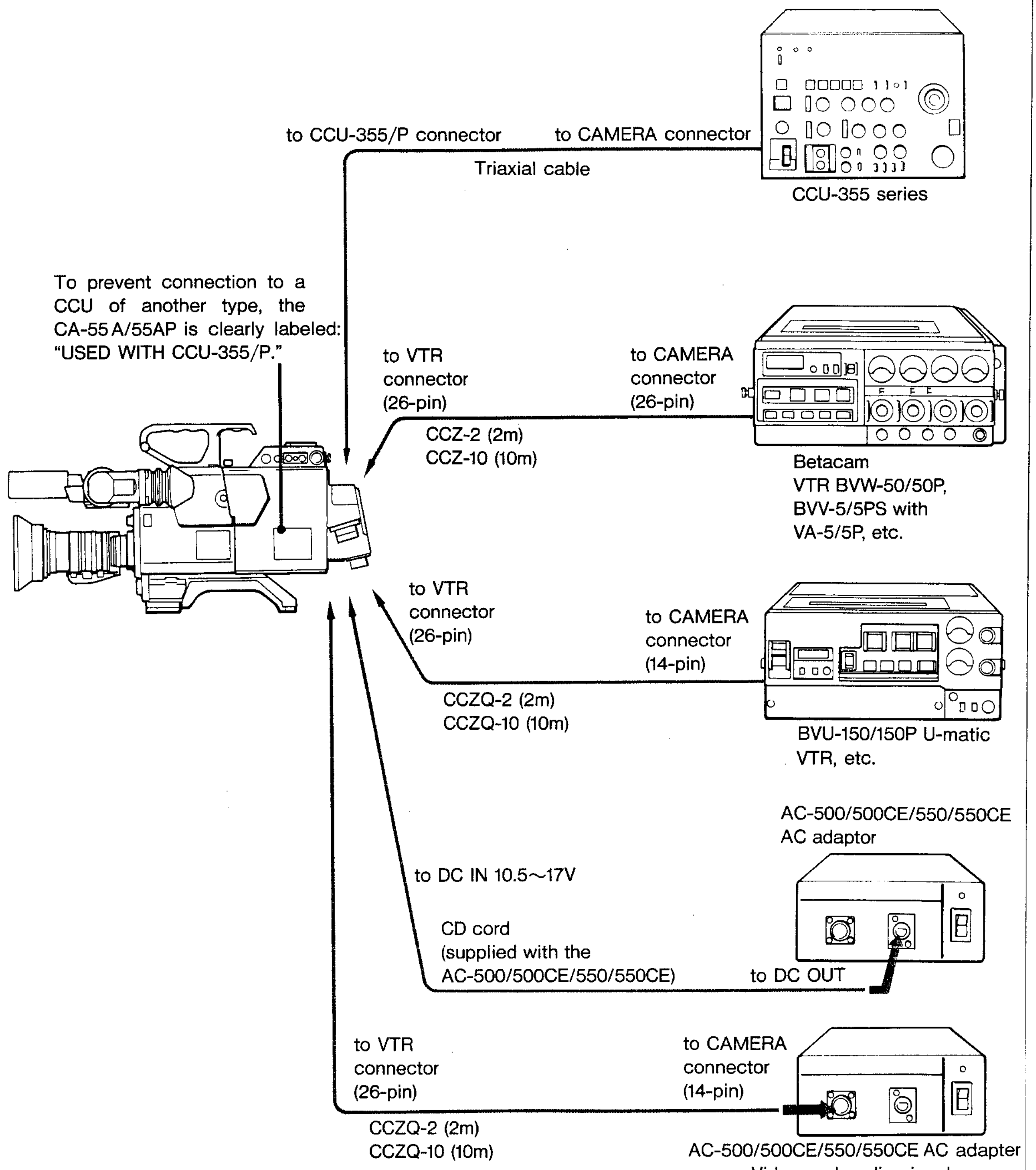


Identifying the camera

The CA-55A/55AP is able to detect whether or not the attached camera is a BVP-90/90P. If the camera is a BVP-90/90P, the unit automatically enters a mode in which it can take advantage of BVP-90/90P functions.
You can set an internal switch to select the camera beforehand. For details about this switch, please see Section 2 "Installation".

1-4. Connections

1-4-1 Connectable Equipment


to CCU-355/P connector
to CAMERA connector
Triaxial cable
CCU-355 series
to VTR
connector
(26-pin)
to CAMERA
connector
(26-pin)
CCZ-2 (2m)
CCZ-10 (10m)
Betacam
VTR BVW-50/50P,
BVV-5/5PS with
VA-5/5P, etc.
to VTR
connector
(26-pin)
to CAMERA
connector
(14-pin)
CCZQ-2 (2m)
CCZQ-10 (10m)
BVU-150/150P U-matic
VTR, etc.
AC-500/500CE/550/550CE
AC adaptor
to DC IN 10.5~17V
CD cord
(supplied with the
AC-500/500CE/550/550CE)
to DC OUT
to VTR
connector
(26-pin)
to CAMERA
connector
(14-pin)
CCZQ-2 (2m)
CCZQ-10 (10m)
AC-500/500CE/550/550CE AC adapter

To prevent connection to a CCU of another type, the CA-55A/55AP is clearly labeled: "USED WITH CCU-355/P."

(Video and audio signals are supplied to the AC-500/500CE/550/550CE and power is supplied to the camera.)

Note

When a CCU is connected, do not connect other equipment to the VTR connector nor to the DC IN 10.5～17V connector. If you connect, the camera will not operate correctly.

If a CCU and VTR are connected at the same time, set the S1 (POWER SAVE) switch on the HN board to the OFF position.
For details, see 2. “Installation”.

If the CA-55A/55AP is attached to a BVP-50/50P in which a BKP-501 board is not installed

For connecting a CCU to this unit, set the sixth switch in the group of S1s located on the IF board of this unit to the OFF position. For details, see 2. "Installation".

1-4-2 Power Supply

When a CCU is connected

Power is supplied to the camera from the CCU.

When a VTR is connected

Power is supplied from the VTR to the camera. However, if a power supply (an AC-500/500CE/550/550CE or a battery pack) is connected to the DC IN connector, power is supplied from the connected equipment.

Battery packs

BP-90
Attach a DC-300 battery case to the this unit or use a DC-210 battery belt.
Two NP-1s
Attach a DC-310 battery case to the this unit.

For details on how to attach the battery case, refer to the instruction manual supplied with the battery case.

Notes

- Do not use a BVF-55CE when power will be supplied from a portable VTR, because the portable VTR cannot supply sufficient power.
- Supply power to the camera independently when a 10 m-cable is used for connecting a VTR.
  If you do not, the battery will run down quickly and the battery lifetime will be shortened.
- If the holder of an old-type DC-300 does not match the camera, it must be replaced. Consult qualified Sony personnel.

When a CCU and VTR are connected at the same time.(For details, see 2. "Installation.")

When you set the POWER switch to the CCU position, power is supplied to the camera from the CCU.
When you set the POWER switch to the EXT position, power is supplied from the VTR to the camera. However, if a power supply (an AC-500/500CE/550/550CE or a battery pack) is connected to the DC IN connector, power is supplied from the connected equipment.

1-5. Remotely Controllable Functions

When this unit is attached to the camera and connected through the CCU to a remote control unit (such as the MSU-350 and RCP-3700 series), camera functions may be controlled remotely (except for the BVP-5/5PS). However, functions which may be controlled remotely differ between cameras. Selection ranges and operating procedures may also differ between cameras, even for the same functions.
The following table explains differences between remote control functions for the BVP-90/90P and BVP-7/7P/70/70P cameras.

Differences in remote control functions between BVP-7/7P/70/70P and BVP-90/90P

Functions	Differences	
	BVP-7/7P/70/70P	BVP-90/90P
Selectable filters	CC filter	CC, ND filters
Gamma value selection adjustment	R/B separate[a] and master adjustment	R/B/G separate[a] and master adjustment
White balance adjustment	R/B separate adjustment[a]	R/B/G separate adjustment[a]
Black balance adjustment	R/B separate[a] and master adjustment	R/B/G separate[a] and master adjustment
Black set adjustment	—	R/B/G separate adjustment[a]
Switching white clip-circuit	—	Yes
Switching linear matrix circuit	—	Yes
Switching detail circuit	—	Yes
Reporting the stste of lens extender to the controller	—	Yes
Reference file operation	—	Yes
Set-up file operation	—	Yes
Scene file operation	Yes	Yes
Master gain value selection	0,9,18 dB	0,3,6,9,18,24 dB[b]

a) Manual adjustment only.
b) Selectable values may differ with the type of the CCU and RCP connected.

Note

When the camera is connected to a remote controller, no operations are possible from the camera side. In addition selection ranges and operating procedures for functions originally supported by the camera may change.

Data files

When this unit is attached to the camera and connected to a remote control unit through the CCU, it is possible to operate data files remotely. Normally you will be able to create reference files, set-up files and scene files. But depending upon the camera type and the connected equipment it may not be possible to create some of these files, or operating procedures may differ. Especially, note that BVP-90/90P files are stored in the camera, but BVP-7/7P/70/70P files are stored in this unit.
For details on operating procedures for data files, see the operation and maintenance manual of the remote control unit.

1-6. Specifications

Input/output connectors

GENLOCK IN	BNC type, 1 Vp-p, 75 ohms, unbalanced
MIC IN	XLR 3-pin, female, 600 ohms, balanced
RET CONT	6-pin
DC IN 10.5~17V	XLR 4-pin, DC 10.5 to 17 V
RET OUT	BNC type, 1 Vp-p, 75 ohms, unbalanced
EARPHONE	Minijack, 8-ohm impedance load
DC OUT 120V	5-pin
DC OUT 10.5~17V	4-pin
INCOM/PGM	XLR 5-pin, female (CA-55A) Double jack (CA-55AP) Microphone: carbon/dynamic (selectable)
CCU-355/P	Triaxial
VTR	Z-type, 26-pin

General

Power consumption	7.5 W
Dimensions	228 x 221 x 103 mm (w/h/d) (9 x 8 3/4 x 4 1/8 inches)
Mass	3 kg (6 lb 10 oz)
Operating temperature	−20°C to +45°C (−4°F to +113°F)
Storage temperature	−20°C to +50°C (−4°F to +122°F)
Supplied parts	Shoulder strap (1) Cable clamp (1) M3/M4 screws for attaching the cable clamp (2, each) Extension board (1) Operation and maintenance manual (1)

Accessory not supplied

CAC-6 Return video selector

Design and specifications are subject to change without notice.

TEIL 1 BETRIEB

1-1. Überblick

Der Kameraadapter CA-55AP ermöglicht es, eine BVP-90P oder andere Betacam-CCD-Farb-Videokamera (außer BVP-5PS) über ein Triaxkabel mit einer Kamera-Steuereinheit der CCU-355-Serie zu verbinden.
Der Kameraadapter eignet sich darüber hinaus für den Anschluß einer Betacam-CCD-Farb-Videokamera an einen portablen Videorecorder (u.a. einen BVP-5PS).

Übertragung eines Komponentensignals

Über das Triaxkabel kann ein Komponentensignal (Y/R–Y/B–Y) übertragen werden.

Hochspannungsschutz

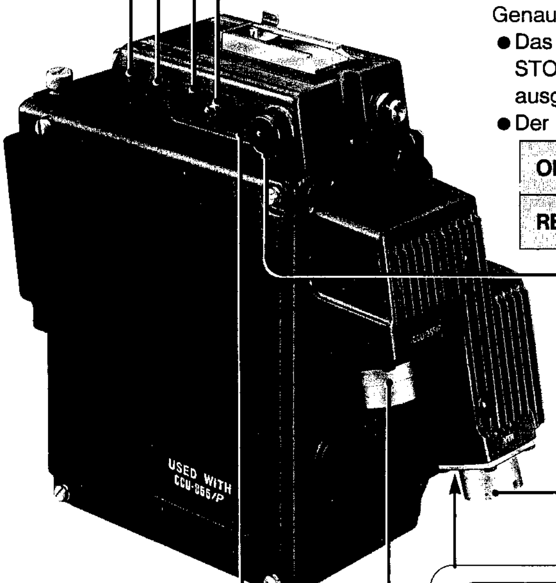
Die Kamera-Steuereinheit (CCU) liefert die Hochspannung nur, wenn alle Anschlüsse hergestellt sind.

Verschiedene Eingänge und Ausgänge

Der Adapter ist mit folgenden Buchsen ausgestattet:

- Rücklaufvideoausgang
- Gleichspannungsausgang zur Versorgung eines drahtlosen Fernbedienungs-Receivers WRR-28L
- Fernsteuereingang für Umschaltsignal von Rücklaufvideo 1 und 2

1-2. Funktion der Teile



Ohrhörerbuchse (EARPHONE)
Zum Anschluß eines 8-Ohm-Ohrhörers, über den der Ton des Videorecorders überwacht werden kann.

Ruftaste (CALL)
Zum Rufen des CCU-Bedienpersonals: Beim Drücken der Taste leuchtet die Signallampe an der CCU und am Sucher auf.

Sprechverkehr-Pegelregler (INCOM LEVEL)
Zur Einstellung der Sprechverkehr-Lautstärke.

Sprechschalter (TALK)

ON	Die Stimme des Kameramanns wird direkt zur CCU übertragen.
REMOTE	Die Übertragung der Stimme des Kameramanns zur CCU wird durch die VTR START/STOP-Taste an der Kamera oder am Objektiv gesteuert.

Wenn der Schalter S1 an der Leiterplatte VA-80 auf RETURN gestellt wird (Werkseitig steht der Schalter auf INCOM. Genaueres siehe unter 2. „Installation".):

- Das Rücklaufvideosignal 2 wird an der VTR START/STOP-Taste an der Kamera oder am Objektiv ein- und ausgeschaltet.
- Der TALK-Schalter besitzt die folgende Funktion:

ON	Die Stimme des Kameramanns wird zur CCU übertragen.
REMOTE	Die Stimme des Kameramanns wird nicht übertragen.

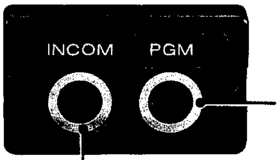
Ein/Aus-Schalter (POWER)

CCU	Das Gerät ist eingeschaltet, wenn die CCU angeschlossen ist.
OFF	Das Gerät ist ausgeschaltet.
EXT	Das Gerät ist eingeschaltet, wenn die CCU nicht angeschlossen ist.

Videorecorderbuchse (VTR)
Siehe Seite 1-10 (G).

Programmton-Pegelregler (PGM LEVEL)
Zur Einstellung der Programmton-Lautstärke.

CCU-355/P-Buchse
Siehe Seite 1-10 (G).

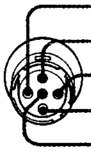


Programmtonbuchse (PGM)
Zum Anschluß eines Kopfhörers zum Hören des Programmtons.

Sprechverkehrbuchse (INCOM)
Zum Anschluß einer Hör-Sprechgarnitur für den Sprechverkehr.

Wenn die Hör-Sprechgarnitur mit einem dynamischen Mikrofon bestückt ist, nehmen Sie das Seitenteil der CA-55AP ab und stellen Sie den MIC-Schalter auf D (dynamisch); werk steht der Schalter auf C (Carbon).
Genaueres siehe unter 2. „Installation".

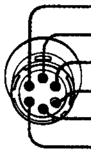
Gleichspannungsausgang (DC OUT 120V)



1: Kein Anschluß
2: Nullpotential für 120 V
3:
4:
5: 120 V (Phase)

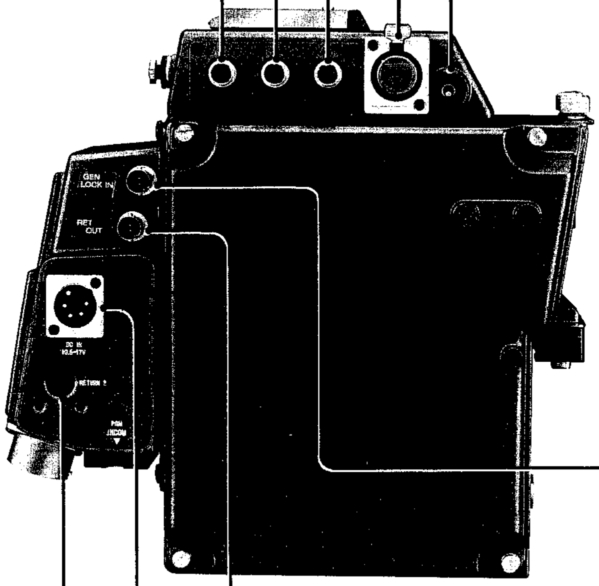
Gleichspannungsausgang (DC OUT 10.5~17V)
Dieser Ausgang liefert die Versorgungs-Gleichspannung für den Fernbedienungs-Receiver WRR-28L.

Rücklaufvideobuchse (RET CONT)



1: Sprechverkehrmikrofonsignal
2: Kein Anschluß
3: Masse
4: Kein Anschluß
5: Rücklaufvideosignal 1
6: Rücklaufvideosignal 2

Zur Zuleitung des Rücklaufvideo-Umschaltsignals und zum Ein- und Ausschalten des Sprechverkehrmikrofons.



Mikrofoneingang (MIC IN)
Zum Anschluß eines externen Mikrofons. An einem Schalter kann gewählt werden, welches Mikrofon aktiviert wird.

INT	Das an der Kamera angebaute Mikrofon.
EXT	Das externe Mikrofon.

Bei Verwendung eines Mikrofons mit Phantomspeisung nehmen Sie das Seitenteil des CA-55AP ab und stellen Sie den MIC POWER-Schalter auf ON. Das Mikrofon wird dann über die MIC IN-Buchse versorgt (+48 V). **Bei Verwendung eines anderen Mikrofons darf nicht vergessen werden, den Schalter wieder auf OFF zu stellen.**
Genaueres siehe unter 2. „Installation".

Synchronsignaleingang (GENLOCK IN)
Zur Zuleitung eines externen Synchronsignals. Zu beachten ist jedoch, daß das Kamerasignal nicht mit dem externen Synchronsignal gekoppelt wird, wenn eine CCU angeschlossen ist.

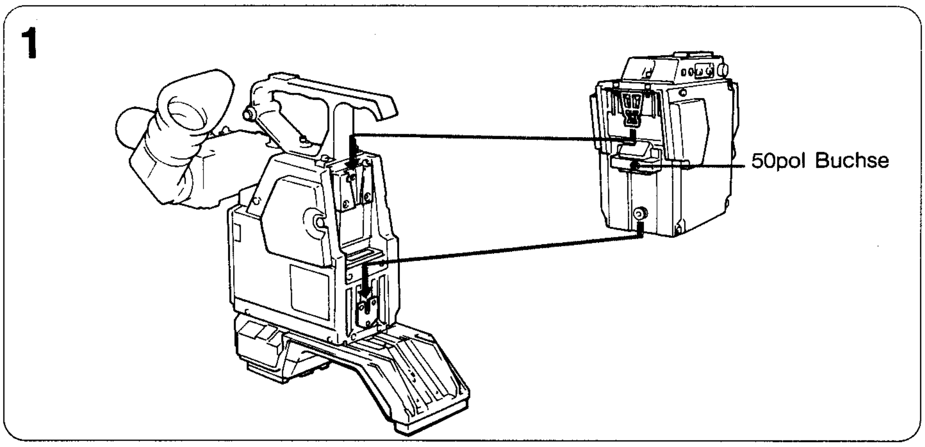
Rücklaufvideoausgang (RET OUT)
Normalerweise gibt die Buchse das Rücklaufvideosignal 1 aus. Nur wenn die RET 2-Taste gedrückt wird, liefert die Buchse das Rücklaufvideosignal 2.

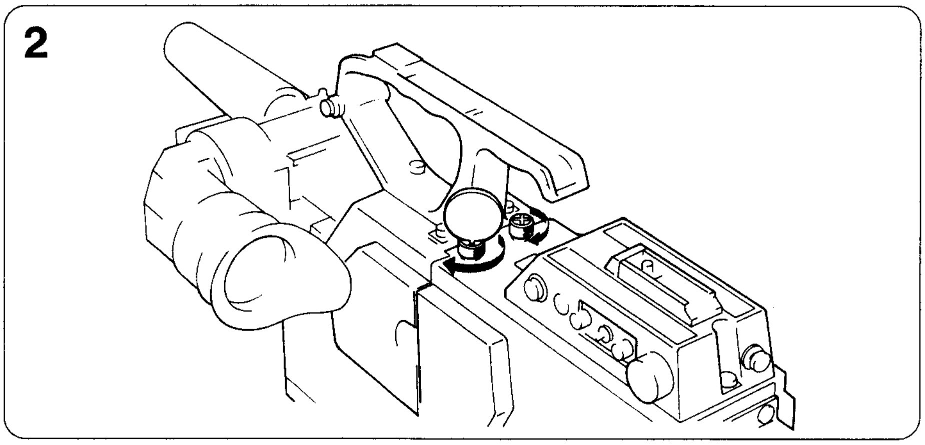
Gleichspannungseingang (DC IN 10.5~17V)
Siehe Seite 1-10 (G).

Rücklaufvideosignal 2-Schalter (RET 2)
Wenn diese Taste gedrückt wird, ist auf dem Sucherschirm das Rücklaufvideosignal 2 zu sehen.

1-3. Grundsätzliche Vorbereitungen

Anbringung des CA-55AP an die Kamera (außer BVP-90P)

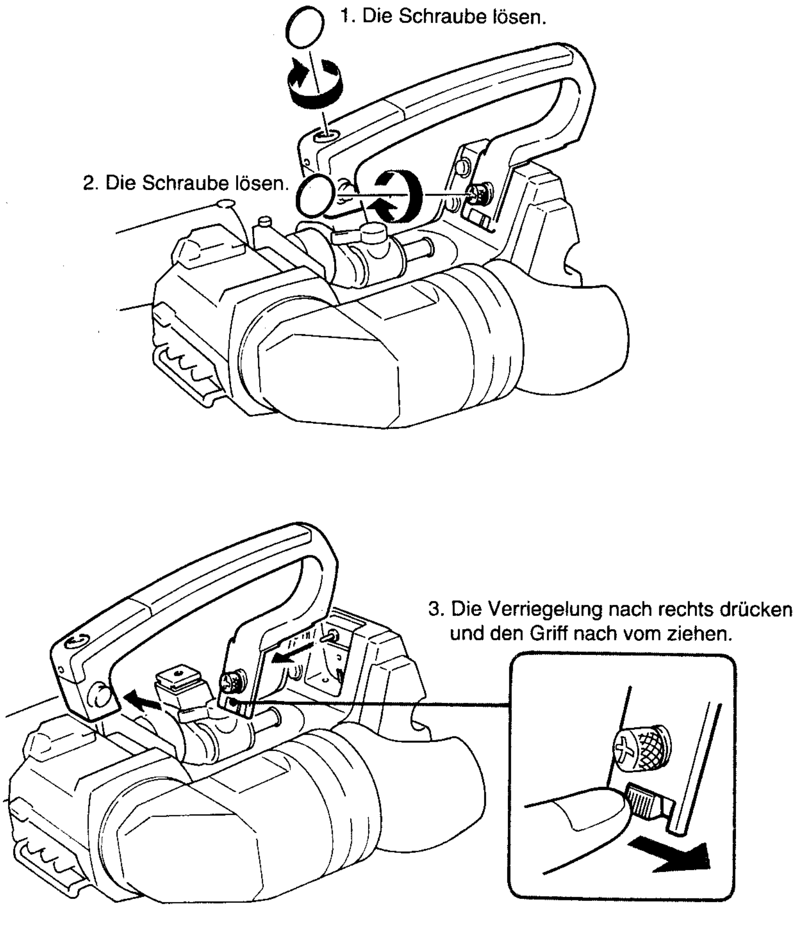




Bei Montage des Kameraadapters an die Kamera wird die 50pol Buchse der einen Einheit mit der 50pol Buchse der anderen verbunden.

Anbringung des CA-55AP an eine BVP-90P

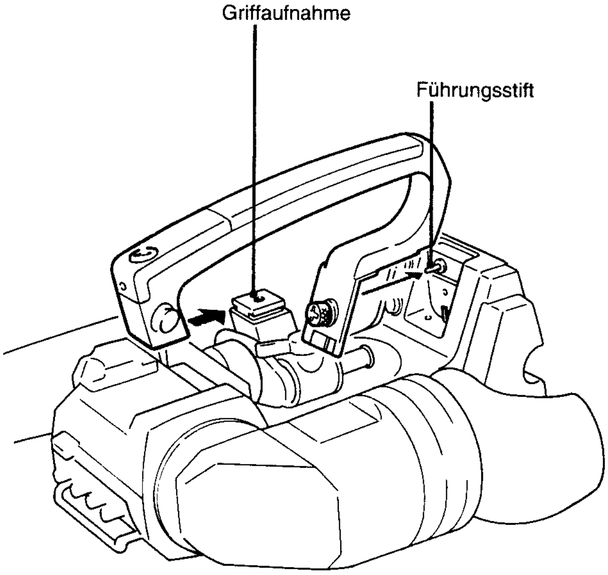
1 Den Kameragriff abmontieren.


1. Die Schraube lösen.
2. Die Schraube lösen.
3. Die Verriegelung nach rechts drücken und den Griff nach vorn ziehen.

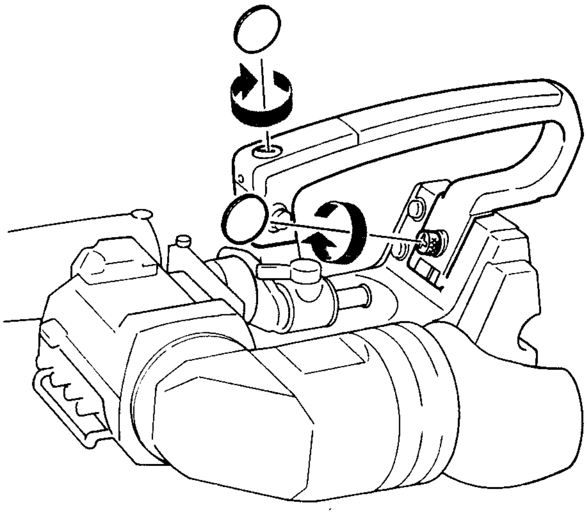
2 Das weitere Verfahren zur Anbringung des CA-55AP ist das gleiche wie auf Seite 1-4(G) beschrieben.

(bitte wenden)

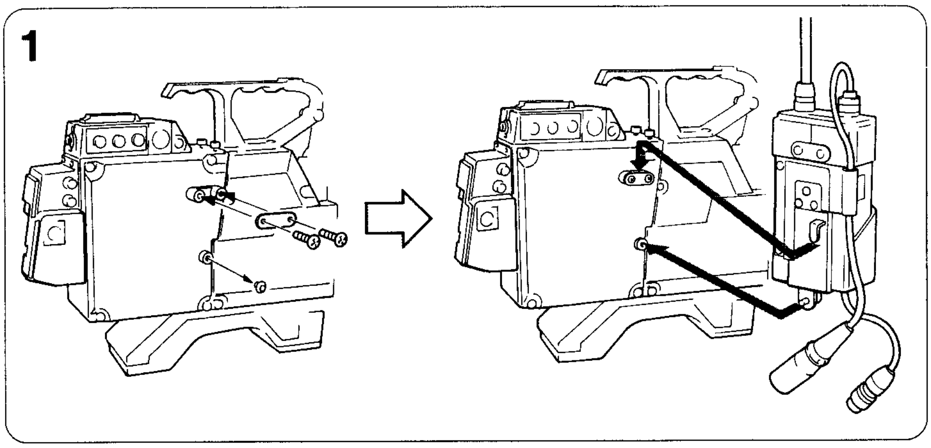
3 Die Frontseite des Griffs vorne an der Griffaufnahme anbringen, und den Führungsstift in die Öffnung an der Rückseite des Griffs schieben. Sicherstellen, daß die Verriegelung an der Rückseite des Griffs eingeschnappt ist.

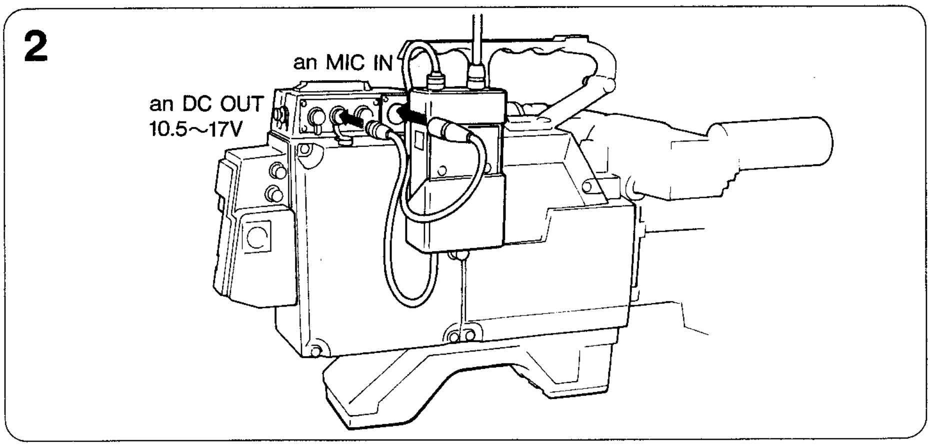

Griffaufnahme
Führungsstift

4 Die zwei Schrauben festziehen.

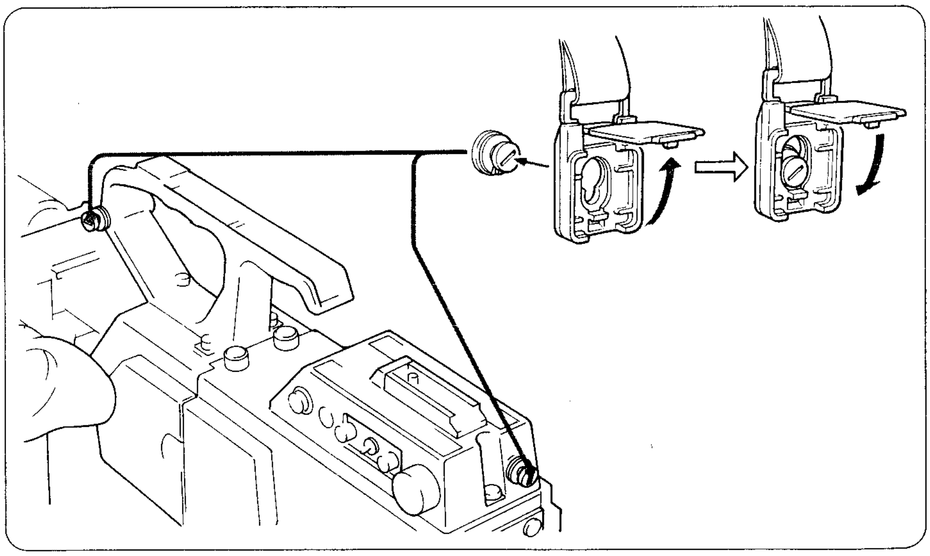


Anbringung des Fernbedienungs-Receivers WRR-28L

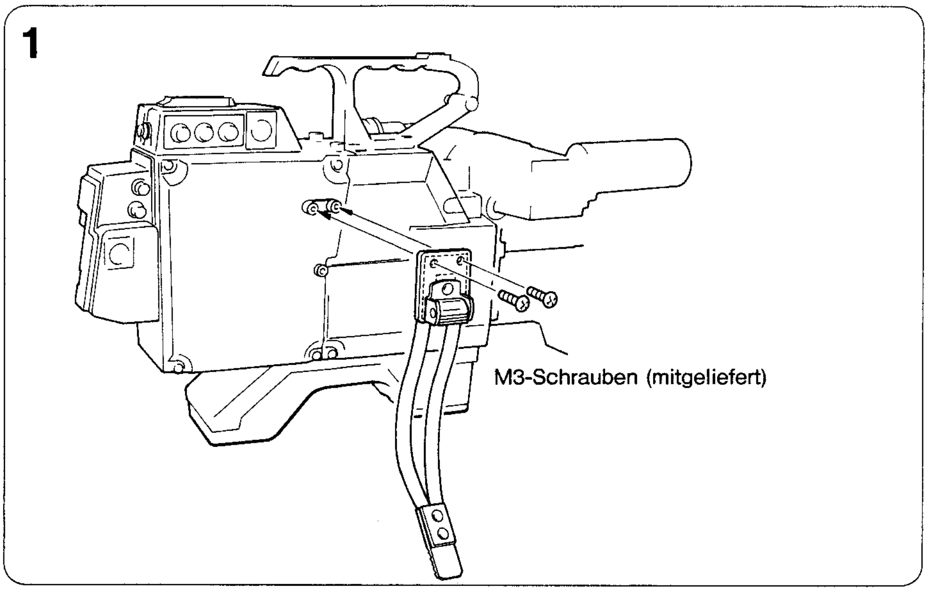


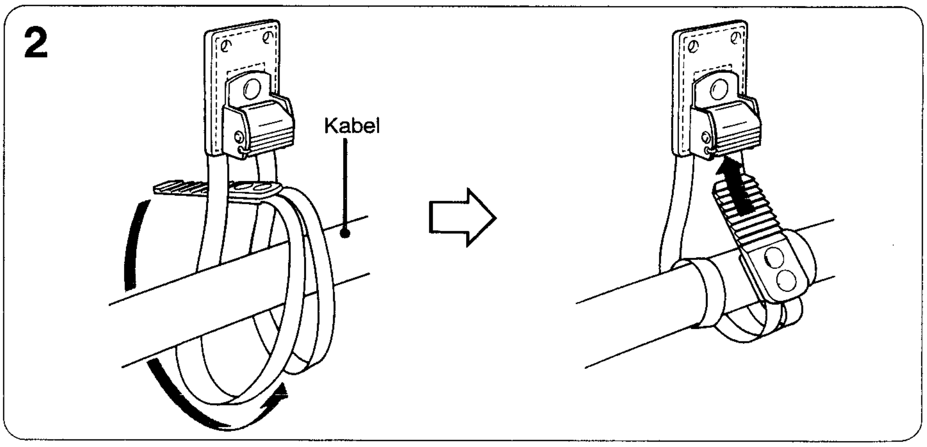

2
an MIC IN
an DC OUT
10.5~17V

Anbringung des mitgelieferten Schulterriemens

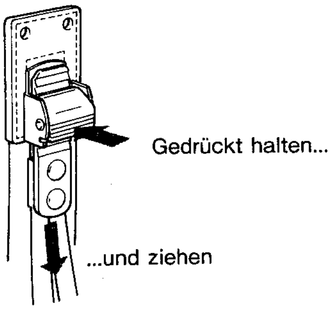


Verwendung der mitgelieferten Kabelklemme

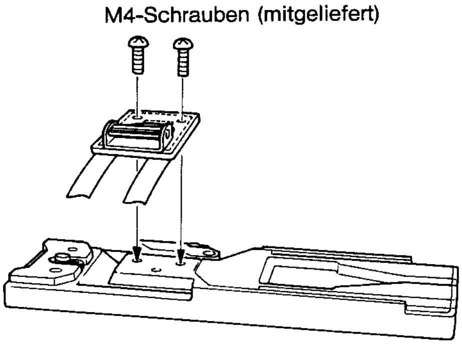

1
M3-Schrauben (mitgeliefert)



Zum Abnehmen des Kabels


Gedrückt halten...
...und ziehen

Ebenfalls anbringbar an der Stativaufnahme VCT-13/14

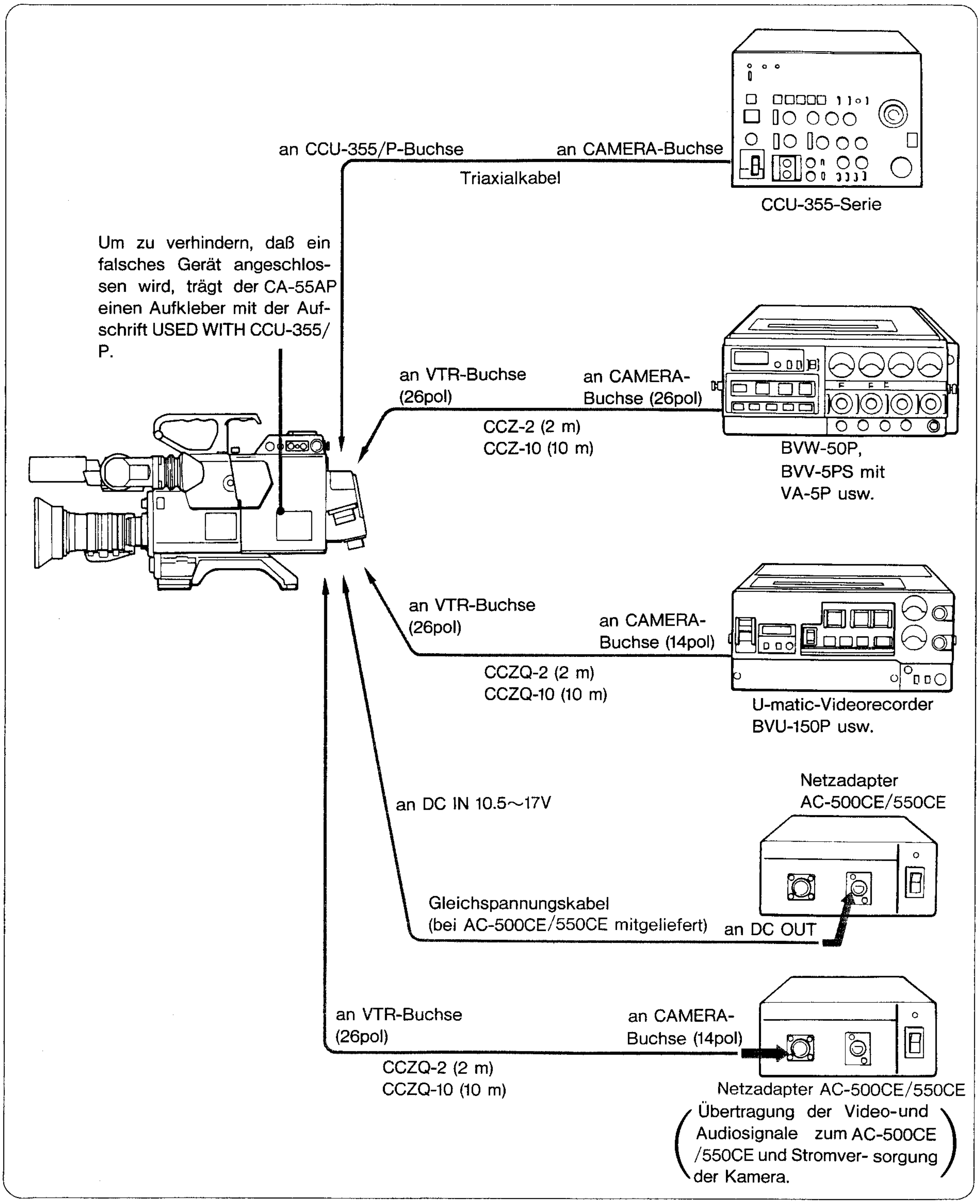

M4-Schrauben (mitgeliefert)

Identifizierung der Kamera

Bei Anschluß des CA-55AP an eine Kamera BVP-90P stellt sich der Kameraadapter automatisch auf die Funktionen der Kamera ein und macht von diesen optimalen Gebrauch.
Über einen internen Schalter läßt sich das Kameramodell im voraus einstellen. Genaueres siehe unter 2. „Installation“.

1-4. Anschlüsse

1-4-1 Anschließbare Ausrüstungen



Um zu verhindern, daß ein falsches Gerät angeschlossen wird, trägt der CA-55AP einen Aufkleber mit der Aufschrift USED WITH CCU-355/P.

an CCU-355/P-Buchse
an CAMERA-Buchse
Triaxialkabel
CCU-355-Serie
an VTR-Buchse
(26pol)
an CAMERA-
Buchse (26pol)
CCZ-2 (2 m)
CCZ-10 (10 m)
BVW-50P,
BVV-5PS mit
VA-5P usw.
an VTR-Buchse
(26pol)
an CAMERA-
Buchse (14pol)
CCZQ-2 (2 m)
CCZQ-10 (10 m)
U-matic-Videorecorder
BVU-150P usw.
Netzadapter
AC-500CE/550CE
an DC IN 10.5~17V
Gleichspannungskabel
(bei AC-500CE/550CE mitgeliefert)
an DC OUT
an VTR-Buchse
(26pol)
an CAMERA-
Buchse (14pol)
CCZQ-2 (2 m)
CCZQ-10 (10 m)
Netzadapter AC-500CE/550CE
(Übertragung der Video-und Audiosignale zum AC-500CE /550CE und Stromver- sorgung der Kamera.)

Zur Beachtung

Wenn eine CCU angeschlossen ist, darf weder an die VTR-Buchse noch an die DC IN 10.5～17V-Buchse ein Gerät angeschlossen werden, da sonst die Kamera nicht einwandfrei arbeitet.
Wenn beide (CCU und Videorecorder) gleichzeitig angeschlossen sind, den Schalter S1 (POWER SAVE) der HN-Leiterplatte auf OFF stellen. Näheres hierzu unter 2. „Installation".

Wenn der CA-55AP an einer BVP-50AP ohne installierte BKP-501 angebracht wird

Soll eine CCU an den Kameraadapter angeschlossen werden, stellen Sie den sechsten Schalter der S1-Gruppe (auf der IF-Leiterplatte des Kameraadapters) auf OFF. Genaueres siehe unter 2. „Installation".

1-4-2 Stromversorgung

Bei Anschluß einer CCU

Die Stromversorgung der Kamera erfolgt über die CCU.

Bei Anschluß eines Videorecorders

Die Stromversorgung der Kamera erfolgt über den Videorecorder. Wenn jedoch eine andere Stromversorgungsquelle (AC-500CE/550CE oder Akku) an die DC IN-Buchse angeschlossen wird, übernimmt diese die Stromversorgung.

Versorgung durch Akku

BP-90

Bringen Sie den Akkubehälter DC-300 am Kameraadapter an oder verwenden Sie den Akkugürtel DC-210.

2 NP-1

Bringen Sie den Akkubehälter DC-310 am Kameraadapter an.

Genaueres zur Anbringung des Akkubehälters kann der mitgelieferten Anleitung entnommen werden.

Zur Beachtung

- Wenn ein portabler Videorecorder die Stromversorgung übernimmt, kann der Sucher BVF-55CE nicht verwendet werden, da die Stromversorgung nicht ausreicht.
- Wenn zum Anschluß des Videorecorders ein über 10 m langes Kabel verwendet wird, sollte die Kamera getrennt mit Strom versorgt werden, da sonst der Akku zu schnell entladen wird und sich seine Lebensdauer verkürzt.
- Die Halterung eines älteren DC-300 paßt möglicherweise nicht an die Kamera und muß ausgewechselt werden. Wenden Sie sich hierzu an einen Sony Fachhändler.

Bei gleichzeitigem Anschluß von CCU und Videorecorder (Näheres hierzu unter 2. „Installation“)

Wenn Sie den POWER-Schalter auf CCU stellen, erfolgt die Stromversorgung der Kamera über die CCU.
Wenn Sie den POWER-Schlter auf EXT stellen, erfolgt die Stromversorgung der Kamera über den Videorecorder. Wenn jedoch eine andere Stromversorgung squelle (AC-500CE/550CE oder Akku) an die DC IN-Buchse angeschlossen wird, übernimmt diese die Stromversorgung.

1-5. Fernsteuerbare Funktionen

Bei an der Kamera angebrachtem Kameraadapter und seinem Anschluß über eine CCU an eine Fernsteuereinheit MSU-350 oder RCP-3700, ist Fernsteuerung der Kamerafunktionen möglich (hiervon ausgenommen ist die BVP-5PS).
Welche Funktionen fernsteuerbar sind, ist abhängig vom jeweiligen Kameramodell. Die Einstellbereiche und Bedienungsverfahren, selbst für die gleichen Funktionen, können ebenfalls je nach Kameramodell unterschiedlich sein.
Die folgende Tabelle erklärt die Unterschiede in den Fernsteuer-Funktionen zwischen den Kameras BVP-90P und BVP-7P/70P.

Unterschiede in den Fernsteuer-Funktionen zwischen BVP-90P und BVP-7P/70P

Funktion	Unterschiede	
	BVP-7P/70P	BVP-90P
Wählbare Filter	CC-Filter	CC-, ND-Filter
Wahl des Gammawerts	Separate[a] und Master-R/B-Einstellung	Separate[a] und Master-R/B/G-Einstellung
Weißabgleich	Separate[a] R/B-Einstellung	Separate[a] R/B/G-Einstellung
Schwarzabgleich	Separate[a] und Master-R/B-Einstellung	Separate[a] und Master-R/B/G-Einstellung
Schwarzabgleich	—	Separate[a] R/B/G-Einstellung
Umschalten der Weiß-Begrenzungsschaltung	—	Ja
Umschalten der Linear-Matrix-schaltung	—	Ja
Umschalten der Detailschaltung	—	Ja
Übertragung des Extenderstatus an die Steuereinheit	—	Ja
Referenzdatei-Operation	—	Ja
Einstelldatei-Operation	—	Ja
Szenendatei-Operation	Ja	Ja
Wahl des Master-Signalverstärkungswerts	0,9,18 dB	0,3,6,9,18,24 dB[b]

a) Nur manuelle Einstellung möglich
b) Die wählbaren Werte sind je nach angeschlossener CCU und RCP unterschiedlich.

Zur Beachtung

Bei angeschlossener Fernsteuereinheit sind alle Funktionselemente an der Kamera wirkungslos. Je nach Kameramodell kann es deshalb vorkommen, daß sich die Einstellbereiche und Bedienungsverfahren ändern.

Dateien

Bei an der Kamera angebrachtem Kameraadapter und seinem Anschluß über eine CCU an eine Fernsteuereinheit ist der ferngesteuerte Datei-Betrieb möglich. In den meisten Fällen lassen sich über den Kameraadapter Referenz-, Einstell- und Szenendateien erstellen. Je nach Kameramodell kann es jedoch vorkommen, daß sich nicht alle dieser Dateitypen erstellen lassen, und daß die Bedienungsverfahren voneinander abweichen. In einer BVP-90P werden die Dateien z.B. in der Kamera gespeichert, bei einer BVP-7P/70P jedoch im Kameraadapter. Näheres über Datei-Operationen entnehmen Sie bitte der Bedienungs- und Wartungsanleitung der Fernsteuereinheit.

1-6. Technische Daten

Eingänge und Ausgänge

GENLOCK IN	BNC-Typ, 1 Vss, 75 Ohm, unsymmetrisch
MIC IN	XLR 3pol, Buchse, 600 Ohm, symmetrisch
RET CONT	6pol
DC IN 10.5~17V	XLR 4pol, 10,5 bis 17 V Gleichspannung
RET OUT	BNC-Typ, 1 Vss, 75 Ohm, unsymmetrisch
EARPHONE	Minibuchse, 8 Ohm, Lastimpedanz
DC OUT 120V	5pol
DC OUT 10.5~17V	4pol
INCOM/PGM	Doppelbuchse Mikrofon: Carbon/dynamisch (wählbar)
CCU-355/P	Triaxial
VTR	Z-Typ, 26pol

Allgemeines

Leistungsaufnahme	7,5 W
Abmessungen	228 x 221 x 103 mm (B/H/T)
Masse	3 kg
Betriebstemperatur	−20 °C bis +45 °C
Lagertemperatur	−20 °C bis +50 °C
Mitgelieferte Teile	Schulterriemen (1) Kabelklemme (1) M3/M4-Schrauben zur Anbringung der Kabelklemme (je 2) Erweiterungs-Leiterplatte (1) Bedienungs- und Wartungsanleitung (1)

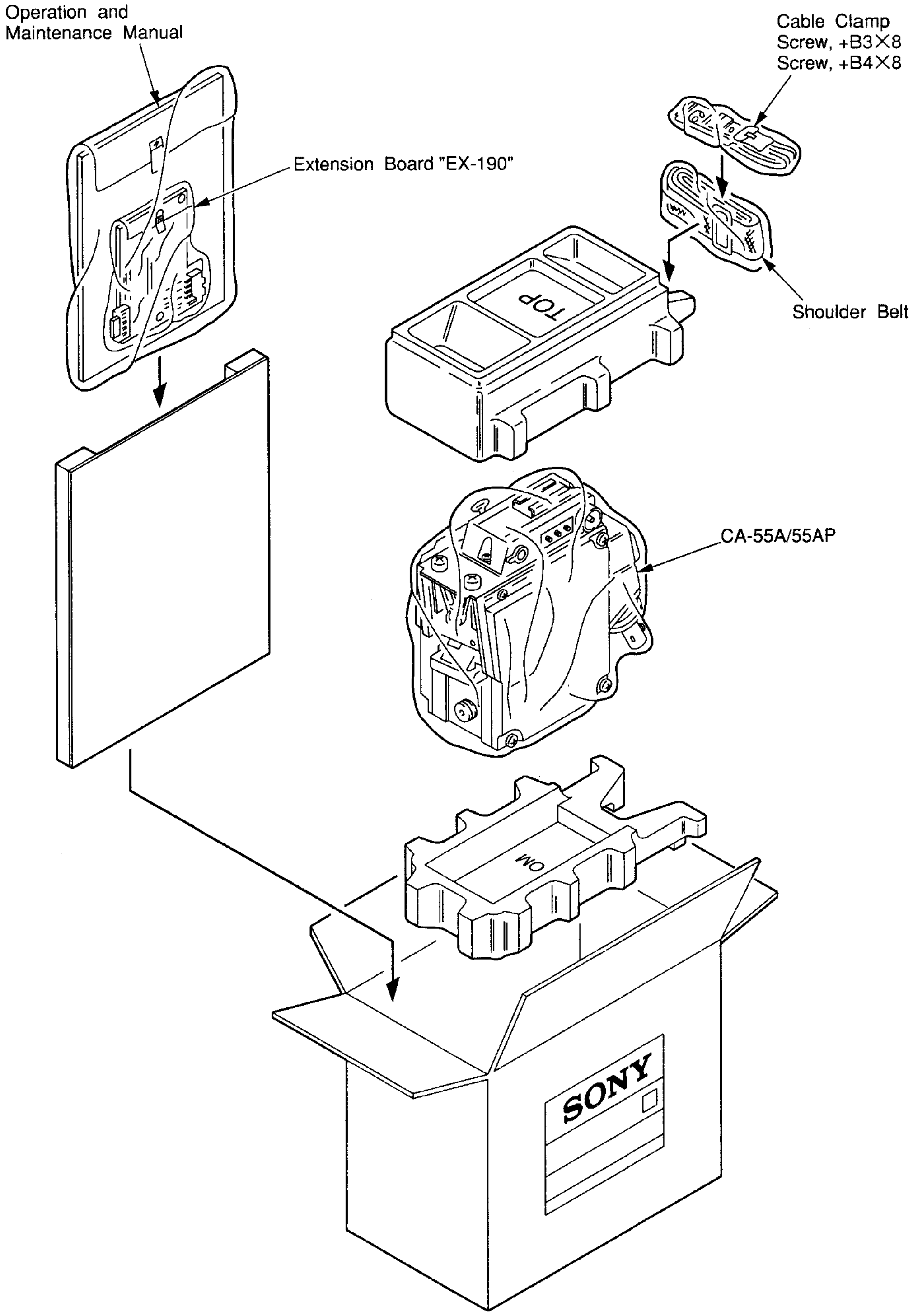
Soustiges Zubehör

CAC-6 Rücksprung Videoschalter

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

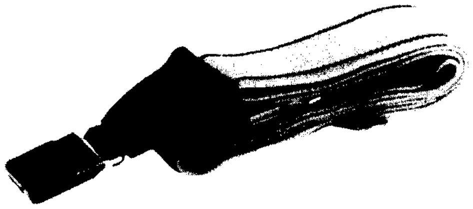
第2章
設 置

2-1. 開梱と再梱包

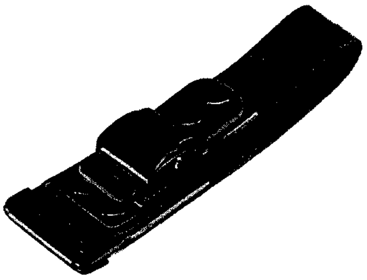

Operation and
Maintenance Manual
Extension Board "EX-190"
Cable Clamp
Screw, +B3×8
Screw, +B4×8
TOP
Shoulder Belt
CA-55A/55AP
OM
SONY

2-2. 標準付属品

ショルダーベルト: 1個 (Sony Parts No. A-6772-374-A)
カメラにCA-55Aを取り付けた状態で肩掛けする時に使用します。



ケーブルクランプ: 1個 (Sony Parts No. 3-734-214-01)



ネジ (+B 3×8): 2個 (Sony Parts No. 7-682-548-09)
ケーブルクランプをCA-55Aに取り付ける時に使用します。

ネジ (+B 4×8): 2個 (Sony Parts No. 7-682-561-09)
ケーブルクランプを三脚アタッチメント (VCT-13/14) に取り付ける時に使用します。

オペレーションアンドメンテナンスマニュアル: 1冊
CA-55Aの取扱い説明書およびサービスマニュアル

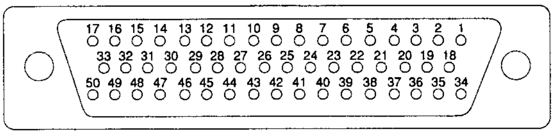
2-3. 適合コネクター/ケーブル

2-3-1. コネクターの入出力信号

主なコネクターの入出力信号は次の通りです。

GENLOCK IN	BNC型, VBS 1 V p-p, 75 Ω, 不平衡
RET OUT	BNC型, VBS 1 V p-p, 75 Ω, 不平衡
CCU	トライアックス
PGM/INCOM	110号ジャック 入力インピーダンス5 k～10 k Ω 出力インピーダンス300 Ω, 不平衡 入力レベル200 mV p-p (1 kHz) 出力レベル最大1.7 V p-p (1 kHz)

CAMERA (50P, FEMALE)

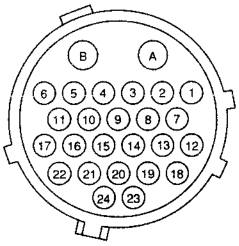

17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18
50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34

(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GEN LOCK OUT (X)	VBS 1 V p-p, Zo = 1 k Ω
2	GEN LOCK OUT (G)	
3	+8.8 V IN	REG (+8.8 V)
4	–5.0 V IN	REG (–5.0 V)
5	UNREG (GND)	GND for UNREG
6	UNREG (GND)	
7	R VIDEO IN (X)	V 0.7 V p-p, Zi = 75 Ω
8	G VIDEO IN (X)	
9	B VIDEO IN (X)	
10	RGB VIDEO IN (G)	GND for R, G, B VIDEO
11	(SPARE)	
12	(SPARE)	
13	(SPARE)	
14	SD IN/OUT	Serial data for camera control
15	MIC IN (G)	Zi ≧ 600 Ω, –60 dBm balanced
16	MIC IN (X)	
17	MIC IN (Y)	
18	RET VIDEO OUT (X)	V 0.7 V p-p, Zo = 1 kΩ
19	RET VIDEO OUT (G)	
20	ZEBRA/AUDIO OUT	AUDIO Zo ≧ 1 kΩ
21	(SPARE)	
22	TAPE IND 2 OUT	ON: +4.5 V, OFF; GND or OPEN
23	TAPE IND 1 OUT	

PIN No	SIGNAL	SPECIFICATIONS
24	REC ALARM OUT	ON: +5 V, OFF: +2.5 V or 0 V, Zo ≧ 20 kΩ
25	BATT IND OUT	Zo = 300 Ω
26	PB REF OUT	PB: +4.5 V, CAM: 0 V or OPEN
27	VTR START/STOP IN	Zi ≦ 10 kΩ
28	(SPARE)	
29	R-Y VIDEO IN (X)	756 mV p-p, Zi = 75 Ω
30	R-Y VIDEO IN (G)	
31	AUDIO CONT IN	0 V (0 dB)~7 V (–20 dB)
32	VTR SAVE IN	SAVE: +4.5 V, STAND BY: 0 V, Zi ≦ 10 kΩ
33	AUDIO MONITOR OUT	No connection
34	SYNC (VTR) IN	5 V p-p, Negative pulse, Zi ≦ 100 Ω
35	(SPARE)	
36	SHUT CLOSE OUT	No connection
37	CF IN	Color Framing
38	RET VIDEO ENABLE IN	ENABLE: 0 V, DISABLE: +5 V or OPEN
39	UNREG OUT	+10.6 V ~ +17 V
40	UNREG OUT	
41	Y VIDEO IN (X)	VS 1.0 V p-p, Zi = 75 Ω
42	Y VIDEO IN (G)	
43	VBS IN (X)	VBS 1.0 V p-p, Zi = 75 Ω
44	VBS IN (G)	
45	(SPARE)	
46	(SPARE)	
47	(SPARE)	
48	(SPARE)	
49	B-Y VIDEO IN (X)	756 mV p-p, Zi = 75 Ω
50	B-Y VIDEO IN (G)	

VTR (26P, MALE)

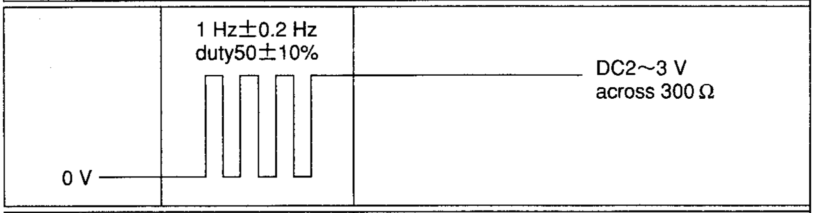


(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
A	POWER (+) IN	UNREG 10.6 V ~ 17 V
B	POWER (–) IN	
1	VBS OUT (X)	VBS 1.0 V p-p, Zo = 75 Ω
2	VBS OUT (G)	
3	Y VIDEO OUT (G)	VS 1.0 V p-p, Zo = 75 Ω
4	Y VIDEO OUT (X)	
5	R-Y VIDEO OUT (X)	Zo = 75 Ω 756 mV p-p
6	R-Y VIDEO OUT (G)	
7	B-Y VIDEO OUT (X)	
8	B-Y VIDEO OUT (G)	
9	MIC OUT (X)	Zo ≦ 600 Ω, –60 dBm balanced
10	MIC OUT (Y)	
11	MIC OUT (G)	
12	VTR START/$\overline{\text{STOP}}$ OUT	START: 4.5 ± 0.5 V dc, STOP: 0 ± 0.5 V dc, Zo ≦ 10 kΩ
13	BATT IND IN	Note 1), Zi = 300 Ω
14	(SPARE)	
15	REC ALARM IN	Note 2), Zi ≧ 20 kΩ
16	(SPARE)	
17	GND (SHIELD)	
18	PB VIDEO IN (X)	V 1 V p-p, Zi = 75 Ω
19	PB VIDEO IN (G)	
20	AUDIO MONITOR IN/VTR SAVE OUT	SAVE: +4.5 V STANDBY: 0 V), Zo ≦ 10 kΩ MONITOR: No connection
21	(SPARE)	
22	COLOR FRAMING PULSE OUT	Color Framing
23	(SPARE)	
24	(SPARE)	

Note 1: pin No.-⑬信号について

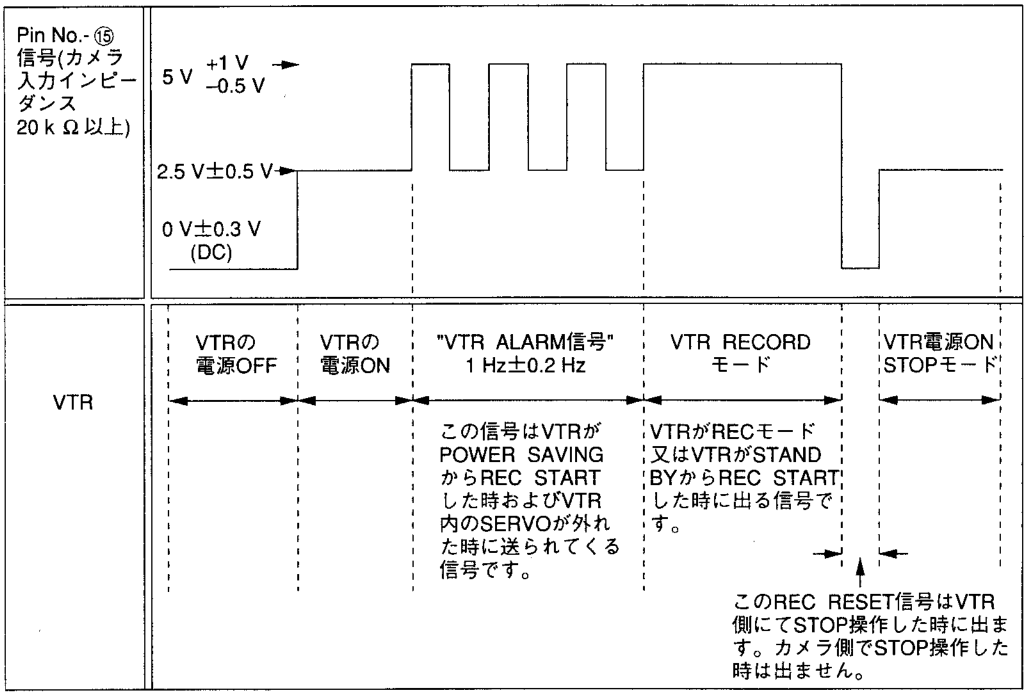
VTR内には、バッテリー端子電圧検出回路およびWARNING信号発生回路があり、下図に示す信号をVTRからカメラに送っています。
カメラの付属ビューファインダー内の発光ダイオードが点滅、又は点灯します。

BATTERY端子電圧 (VTR内蔵バッテリー)	DC12 V～ 11.1 V	DC11.1 V～10.8 V	DC10.8 VでPin-⑬はHIGHとなります。また DC10.6 V以下ではVTR内部電源は自動的に切られ、カメラにのみバッテリー出力を送ります。
VTRからの Pin-⑬信号			
ビューファインダー 内発光ダイオード	点滅も 点灯もしません。	1 Hzで点滅します。	点灯

0 V
1 Hz±0.2 Hz
duty50±10%
DC2～3 V
across 300 Ω

Note 2: pin No.-⑮信号について

VTRの電源がONの時はDC 2.5 V, 記録モードの時はDC 5 Vが出ます。
VTRサーボがかかっていない時、又はVTR内で他のアラーム信号が出ている時は、DC 2.5 Vに重畳した1 Hz (2.5 V p-p) の信号が出ます。
テープエンドでVTRがストップモードになった時VTR側でストップ操作をし、VTRをストップモードにした時には、DC 0 Vが10 msec～100 msecの間 (RECリセットと呼びます) 出てからDC 2.5 Vになります。

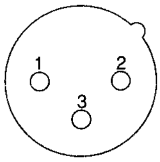

Pin No.-⑮
信号(カメラ
入力インピー
ダンス
20 k Ω 以上)
5 V
+1 V
−0.5 V
2.5 V±0.5 V
0 V±0.3 V
(DC)
VTR
VTRの
電源OFF
VTRの
電源ON
"VTR ALARM信号"
1 Hz±0.2 Hz
VTR RECORD
モード
VTR電源ON
STOPモード

この信号はVTRがPOWER SAVINGからREC STARTした時およびVTR内のSERVOが外れた時に送られてくる信号です。

VTRがRECモード又はVTRがSTAND BYからREC STARTした時に出る信号です。

このREC RESET信号はVTR側にてSTOP操作した時に出ます。カメラ側でSTOP操作した時は出ません。

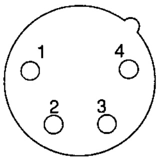
MIC IN (3P, MALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	MIC IN (G)	600 Ω, –60 dBm
2	MIC IN (X)	
3	MIC IN (Y)	

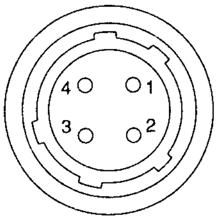
DC IN (4P, MALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	DC 10.5 ~ 17.0 V

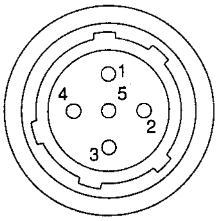
DC OUT (10.5 V ~ 17 V) (4P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) OUT	DC 10.5 ~ 17.0 V

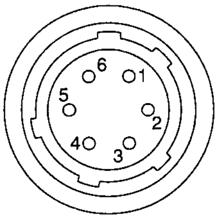
DC OUT (120 V) (5P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	(SPARE)	
2	120 V OUT (C)	GND
3		
4		
5	120 V OUT (H)	DC 120 V

RET CONT (6P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	INCOM MIC ON/ OFF IN (X)	ON: 0 V, Zi≦10 kΩ
2	(SPARE)	
3	GND	
4	(SPARE)	
5	RET 1 CONT IN	ON: 0 V, Zi≦10 kΩ
6	RET 2 CONT IN	ON: 0 V, Zi≦10 kΩ

2-3-2. 接続コネクター

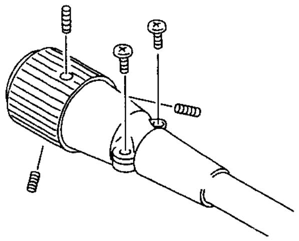
設置時、サービス時等において、コネクター部の各種コネクターにケーブルを接続する際には、その先端に次に記すコネクターまたは同等品を使用してください。

Connector Function	Parts No. and Name of Connector with Cable	
RET OUT GENLOCK IN (BNC)	1-560-069-11 PLUG, BNC or B-B cable assembly (Cable length 1.5 m, optional)	
CCU (TRIAX)	CCT Cable assembly (Optional, by FISCHER) CCT-50 (50 m/164 feet) CCT-100 (100 m/328 feet) CCT-150 (150 m/492 feet) CCT-300 (300 m/984 feet)	CCT (K) Cable assembly (Optional, by KINGS) CCT-K50 (50 m/164 feet) CCT-K100 (100 m/328 feet) CCT-K150 (150 m/492 feet) CCT-K300 (300 m/984 feet)
VTR (26P, MALE)	1-564-184-00 CONNECTOR, 26PIN, FEMALE or cable assembly (optional) • For 26PIN-VTR use CCZ-2 (2 m) CCZ-10 (10 m) • For 14PIN-VTR use CCZQ-2 (2 m) CCZQ-10 (10 m)	
MIC IN (For J model) (3P, MALE)	1-508-083-00 XLR-3P, FEMALE CANNON XLR-3-11C or equivalent	
MIC IN (For UC/EK model) (3P, FEMALE)	1-508-084-00 XLR-3P, MALE CANNON XLR-3-12C or equivalent	
DC IN (4P, MALE)	1-508-362-00 XLR-4-11C, FEMALE or Cable assembly (Supplied with AC-500/550) 1-551-577-00 Cable with XLR plugs (Cable length 2 m)	
DC OUT (10.5 V ~ 17 V) (4P, FEMALE)	1-566-425-11 PLUG, 4P, MALE HIROSE HR-10A-7P-4PB or equivalent	
DC OUT (120 V) (5P, FEMALE)	1-565-799-11 PLUG, 5P, MALE HIROSE HR-10A-7P-5P or equivalent	
RET CONT (6P, FEMALE)	1-566-365-11 PLUG, 6P, MALE HIROSE HR-10A-7P-6P or equivalent	

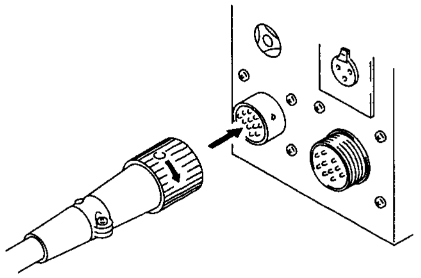
2-3-3. CCZ, CCZQコネクターの交換方法

CCZコネクター (外し方)

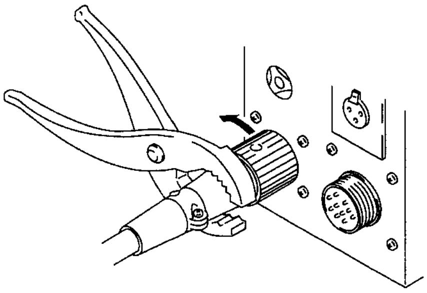
Step 1.
ビスを外します。



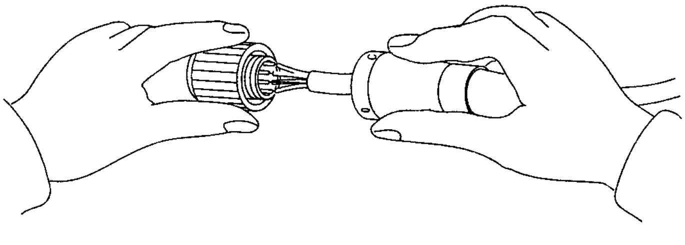
Step 2.
コネクターをカメラ又はVTRに接続し、固定します。



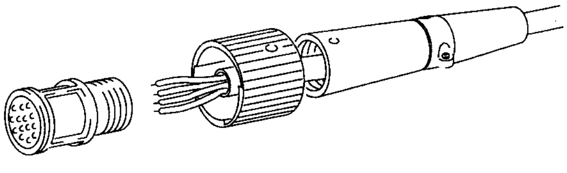
Step 3.
プライヤー等で反時計方向に回し、コネクターをゆるめます。



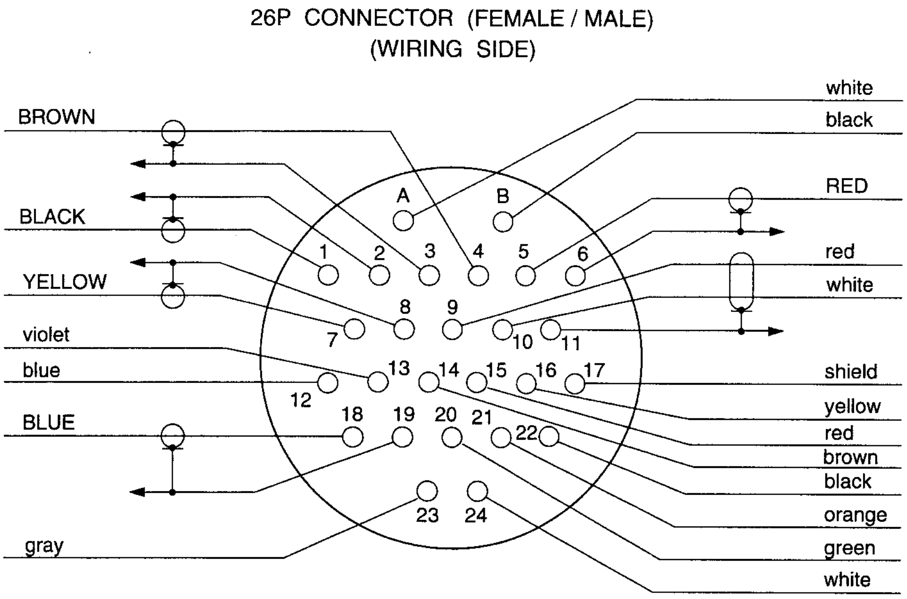
Step 4.
あとは手で外せます。



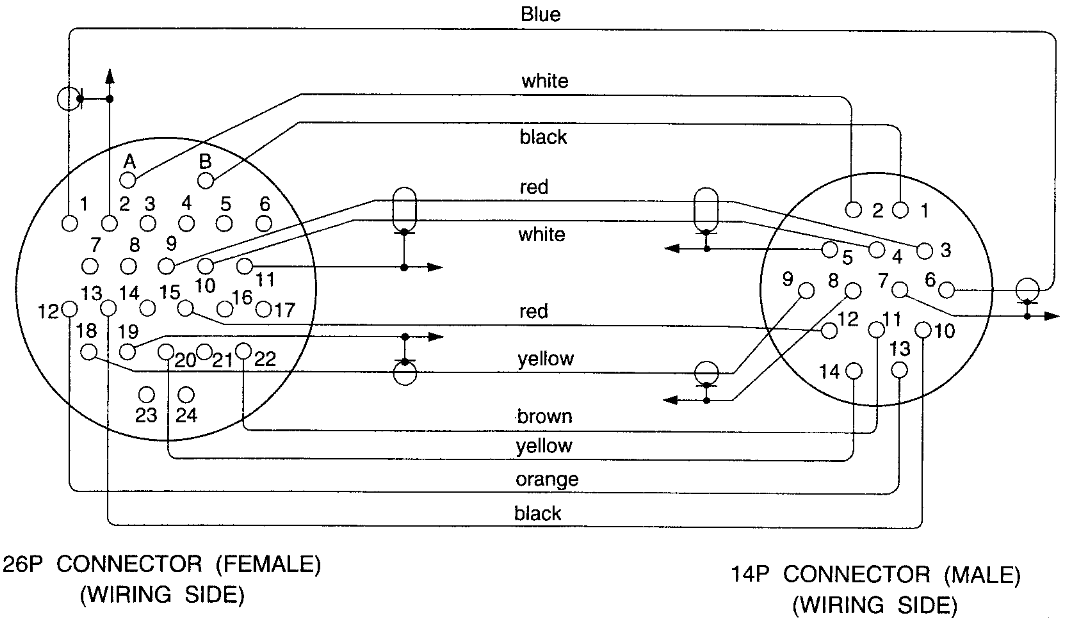
Step 5.
右図のように分解されます。



CCZケーブル (結線図)

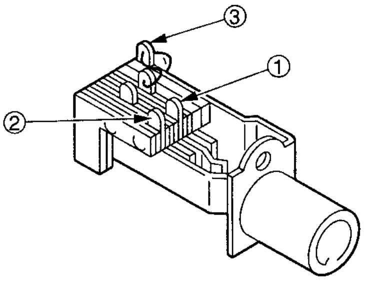

26P CONNECTOR (FEMALE / MALE)
(WIRING SIDE)
BROWN
BLACK
YELLOW
violet
blue
BLUE
gray
white
black
RED
red
white
shield
yellow
red
brown
black
orange
green
white
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CCZQケーブル (結線図)

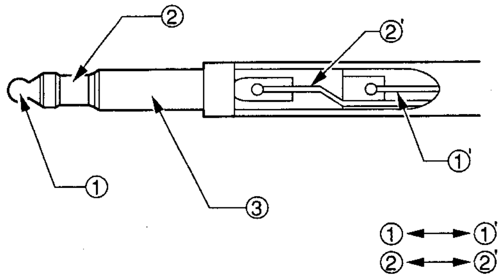

Blue
white
black
red
white
red
yellow
brown
yellow
orange
black
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
26P CONNECTOR (FEMALE)
(WIRING SIDE)
14P CONNECTOR (MALE)
(WIRING SIDE)

2-3-4. INCOM/PGMプラグの接続方法

INCOM/PGMジャック接続端子



INCOM/PGMプラグ接続端子



Pin No.	Signal
①	INCOM TALK IN (X)
②	INCOM RECEIVE OUT (X)
	PGM IN (X)
③	INCOM TALK IN (G) INCOM RECEIVE OUT (G)
	PGM IN (G)

2-4. 電源

電源電圧　DC 12 V (DC 10.5 V～17 V)

1. CCU端子（トライアックスケーブル）を経由し、CCU-355より供給。
2. VTR端子（CCZ, CCZQケーブル）を経由し、VTR又はACアダプター (AC-500/550) より供給。
3. DC IN端子を経由し、ACアダプター (AC-500/550) 又はバッテリー (DC-300/BP-90A, DC-210/BP-90A, DC-310/NP-1A) より供給

2-5. 別売アクセサリー

カメラケーブル　CCZ-2 (2 m)
CCZ-10 (10 m)

ベータカムVTR "BVW-25/35/50"と接続したり、又は"BVV-1/1A/5"をカメラより切り離して接続する時に使用します。"BVV-1/1A/5"と接続する時は、VTRアダプター"VA-1/5"が必要になります。

カメラケーブル　CCZQ-2 (2 m)
CCZQ-10 (10 m)

UマチックVTR (BVU-150等), ACアダプター (AC-500/550) と接続する時に使用します。

カメラケーブル　トライアックスケーブル
CCT-50 (50 m)
CCT-100 (100 m)
CCT-150 (150 m)
CCT-300 (300 m)

カメラコントロールユニットCCU-355と接続する時に使用します。

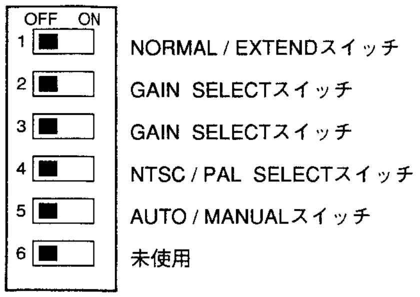
カラービデオカメラ	**ベータカムCCDカメラシリーズ BVP-90, BVP-50, BVP-7A, BVP-70IS, BVP-T7A/T70**
カメラコントロールユニット	**CCU-355**
バッテリーケース	**DC-300 (バッテリーBP-90A用)**
バッテリーケース	**DC-210 (バッテリーBP-90A用)**
バッテリーケース	**DC-310 (バッテリーNP-1A用)**

バッテリーNP-1A/1B
バッテリーBP-90A

2-6.　スイッチ、ボリュームのセッティング

IF-423基板

S1スイッチ


OFF
ON
1
2
3
4
5
6
NORMAL / EXTENDスイッチ
GAIN SELECTスイッチ
GAIN SELECTスイッチ
NTSC / PAL SELECTスイッチ
AUTO / MANUALスイッチ
未使用

S1-1 NORMAL/EXTEND スイッチ

カメラ側のPR基板の種類により設定します。

ON (EXTEND)　: GAMMAコントロール可能なPR基板
OFF (NORMAL) : GAMMAコントロール不可能なPR基板
工場出荷時は"ON"に設定してあります。

S1-2 GAIN SELECTスイッチ

S1-3 GAIN SELECTスイッチ

カメラコントロールユニットCCU-355の"MASTER GAIN"とカメラのゲインを合わせるために使用します。
工場出荷時は0/9/18 dBに設定されています。

S1-2	S1-3	MASTER GAIN
OFF	OFF	0/6/12 dB
ON	OFF	0/9/18 dB
OFF	ON	0/9/24 dB
ON	ON	RM-3601

注意: S1-1，S1-2およびS1-3はBVP-90以外のカメラを使用したときのみ機能します。

S1-4 NTSC/PAL SELECTスイッチ

NTSCとPALの切換えスイッチです。

OFF: NTSC
ON : PAL

S1-5 AUTO/MANUAL スイッチ

接続されているビデオカメラがBVP-90であるかどうかの自動判別モードにする時に、"OFF"側に設定します。

OFF: 自動判別モードになります。
(工場出荷時)
ON : S3スイッチによって、接続されるビデオカメラが指定されます。

S1-6 未使用

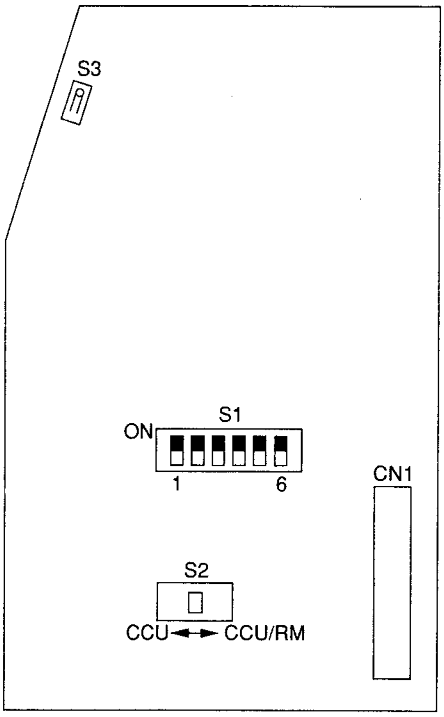
S2 CCU/RM/CCU SELECTスイッチ

CCU　　: CCU-355からのデータのみ受けられます。
CCU/RM : CCU-355またはRM-3601からのデータを受けられます。切換えは自動で行われRM-3601からのデータを優先して受けます。

S3

S1-5スイッチを"ON"にした時、使用ビデオカメラの指定を行います。

CAM A : BVP-90を指定します。
(工場出荷時)
CAM B : BVP-90以外のカメラを指定します。


S3
ON
S1
1
6
CN1
S2
CCU
CCU/RM

IF-423 BOARD (COMPONENT SIDE)

TR-47基板

S1: MIC SELECTスイッチ

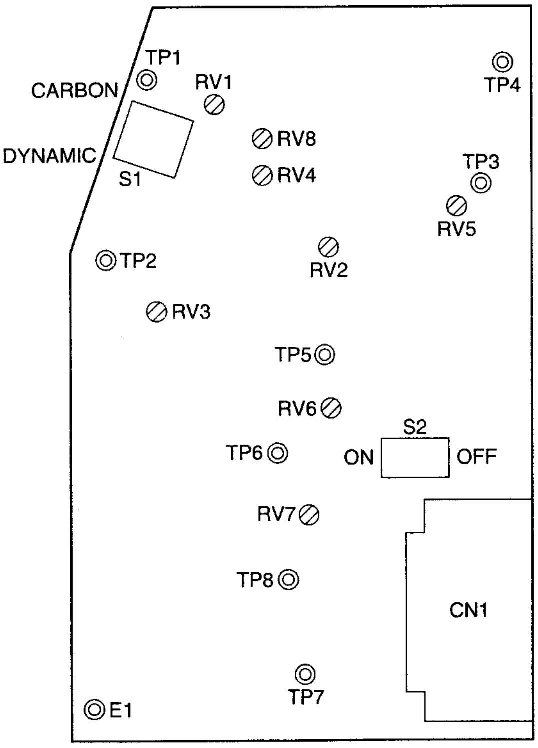
インカム用マイクがカーボン式の時は、CARBON側に、ダイナミック式の時は、DYNAMIC側にセットします。
工場出荷時は、CARBON側にセットされています。

S2: PGM/INCOM MIX ON/OFFスイッチ

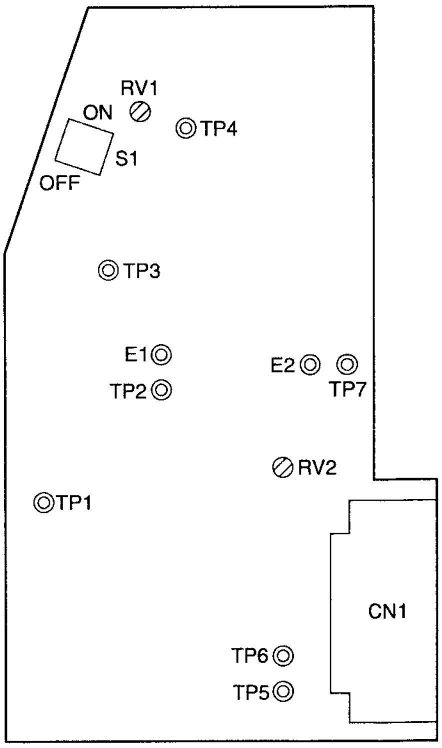
RX-6基板

S1: MIC POWER ON/OFFスイッチ

外部電源供給方式を採用しているマイク（ソニーC-38B等）を使用する場合、このスイッチをONにします。
MIC IN端子からDC+48 V電源が供給されます。
ECNシリーズ等のマイクを使用する時はOFFにします。
工場出荷時は、OFF側にセットされています。


TP1
CARBON
RV1
TP4
DYNAMIC
S1
RV8
RV4
TP3
RV5
TP2
RV2
RV3
TP5
RV6
S2
TP6
ON
OFF
RV7
TP8
CN1
E1
TP7

TR-47 BOARD (COMPONENT SIDE)


RV1
ON
TP4
S1
OFF
TP3
E1
E2
TP7
TP2
RV2
TP1
CN1
TP6
TP5

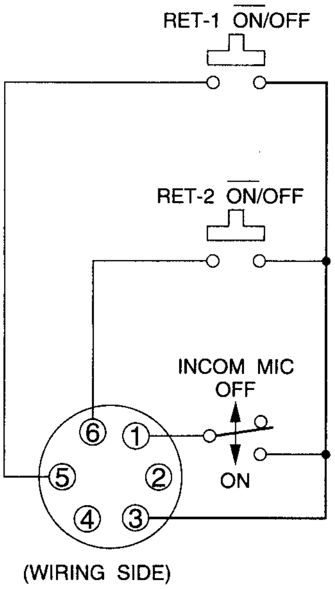
RX-6 BOARD (COMPONENT SIDE)

VA-80基板

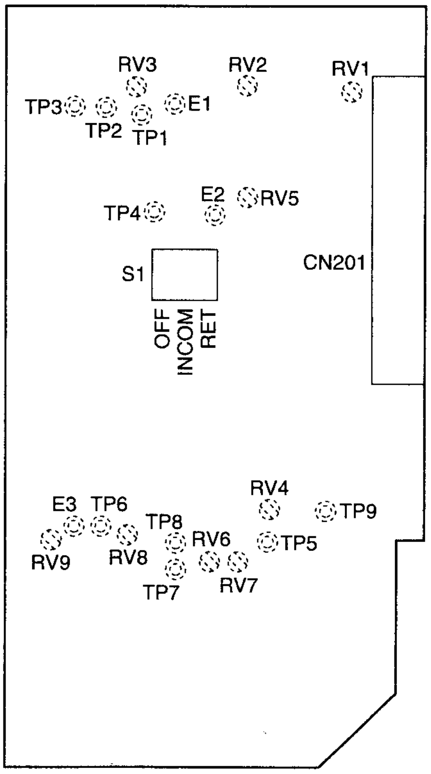
S1: INCOM/RET SELECTスイッチ

CCU接続時、カメラ本体またはレンズのVTR START/STOPボタンでリターンビデオ2信号をON/OFFする時は、RET側に、CCU側への声の送信をON/OFFする時は、INCOM側にします。S1がOFFの時にはRET-2もINCOMもVTR START/STOPボタンではコントロールできません。

工場出荷時は、INCOM位置にセットされています。
CA-55A上部コネクターパネル部のRET CONTコネクターに右記のスイッチ回路を接続します。

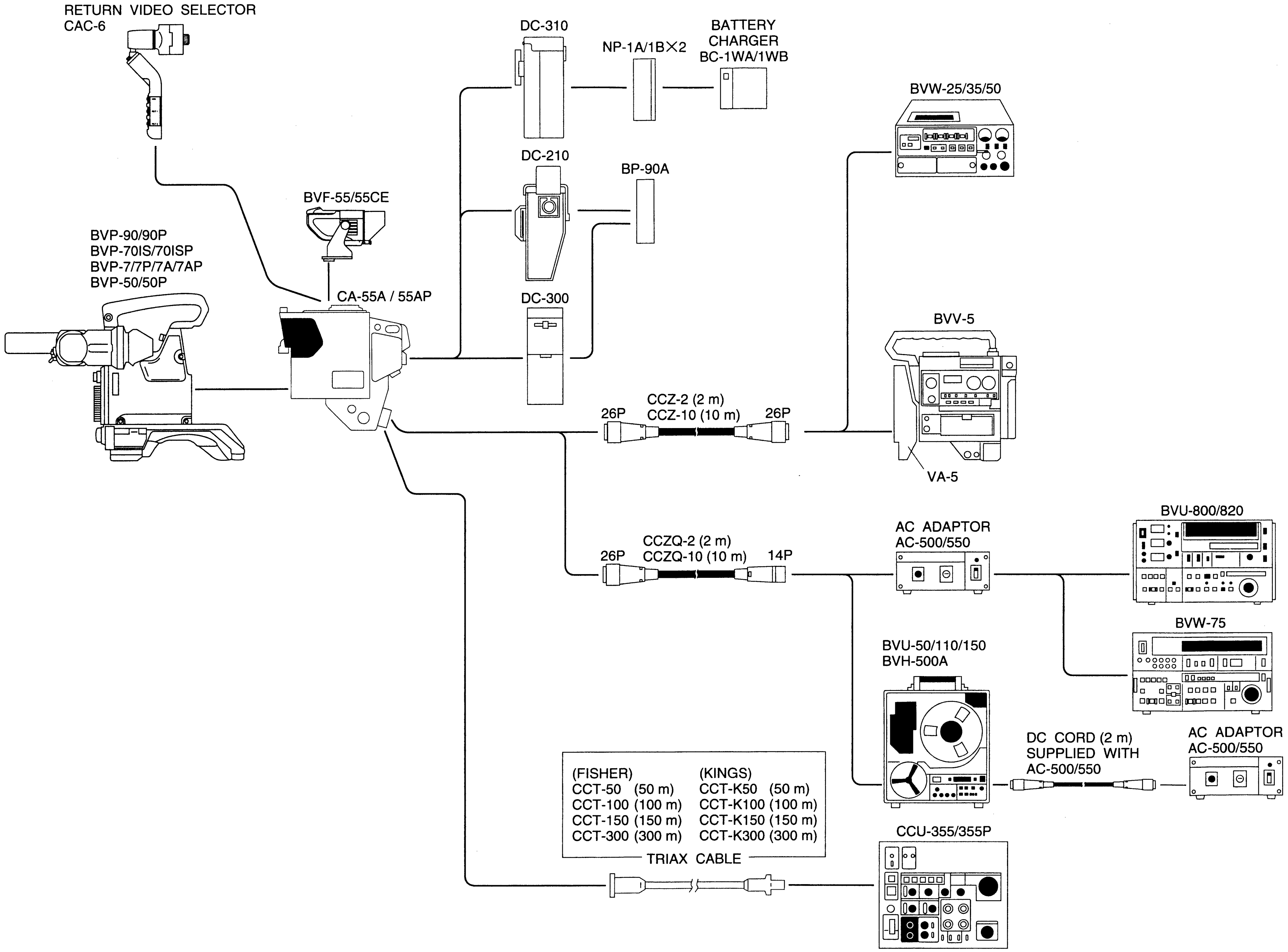

RET-1 $\overline{\text{ON}}$/OFF
RET-2 $\overline{\text{ON}}$/OFF
INCOM MIC
OFF
ON
⑥
①
⑤
②
④
③
(WIRING SIDE)

TALK スイッチ	[illegible]	[illegible]
	OFF	カメラマンの声がCCU側に送られます。
	INCOM	
	RET	
REMOTE		カメラ本体又はレンズのVTR START/STOPボタンでのRET-2信号及びINCOM信号がコントロールできません。
	INCOM	カメラ本体又はレンズのVTR START/STOPボタンでCCU側への声の送信をON/OFFできます。
	RET	カメラ本体又はレンズのVTR START/STOPボタンでリターンビデオ2信号をON/OFFできます。 ただし、カメラマンの声はCCU側へ送られません。

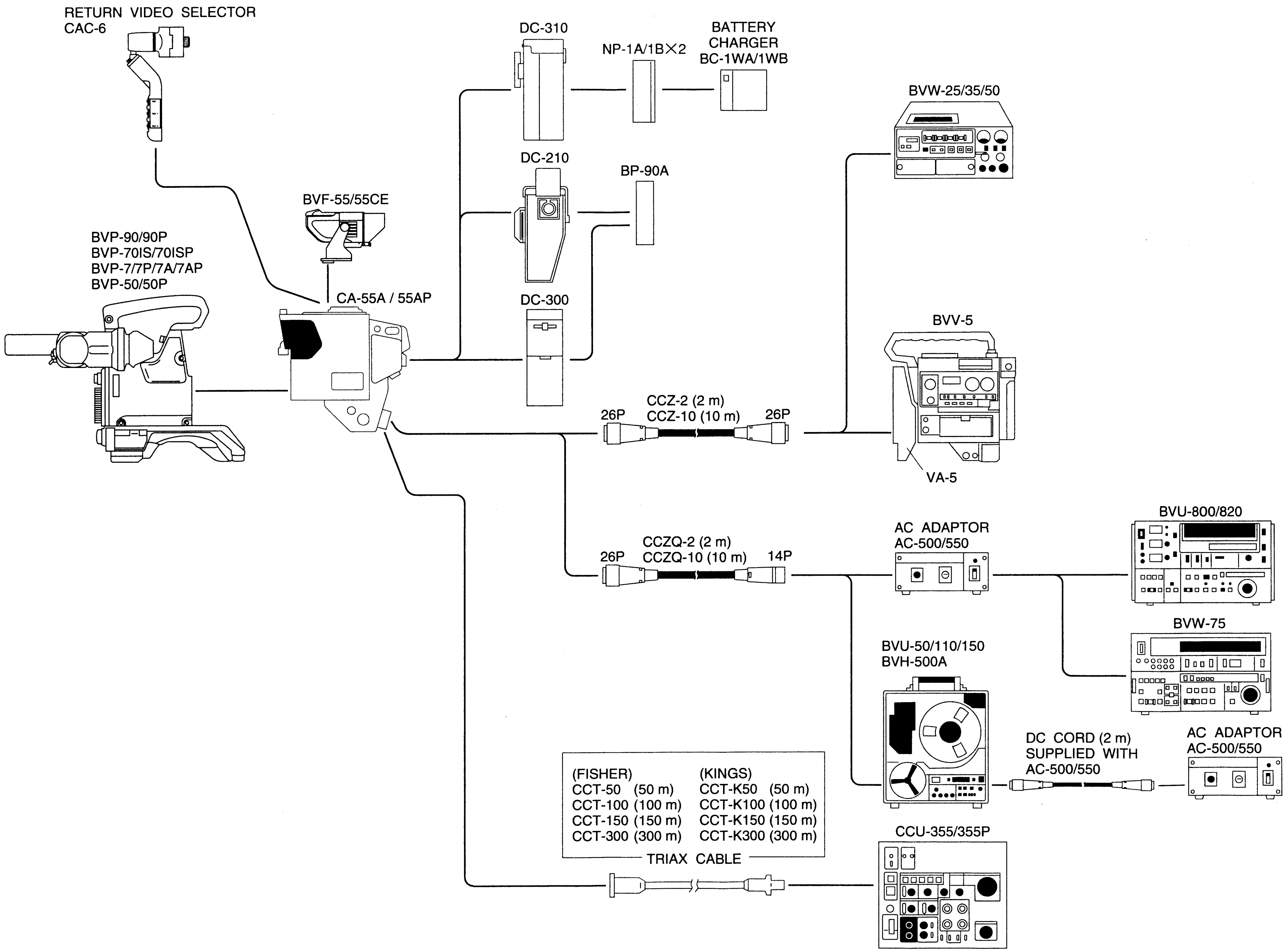

RV3
RV2
RV1
TP3
E1
TP2
TP1
TP4
E2
RV5
S1
CN201
OFF
INCOM
RET
E3
TP6
TP8
RV4
TP9
RV6
TP5
RV9
RV8
TP7
RV7

VA-80 BOARD (SOLDERING SIDE)

2-7. システム接続


RETURN VIDEO SELECTOR
CAC-6
BVF-55/55CE
BVP-90/90P
BVP-70IS/70ISP
BVP-7/7P/7A/7AP
BVP-50/50P
CA-55A / 55AP
DC-310
NP-1A/1B×2
BATTERY
CHARGER
BC-1WA/1WB
DC-210
BP-90A
DC-300
BVW-25/35/50
BVV-5
VA-5
26P
CCZ-2 (2 m)
CCZ-10 (10 m)
26P
26P
CCZQ-2 (2 m)
CCZQ-10 (10 m)
14P
AC ADAPTOR
AC-500/550
BVU-800/820
BVW-75
BVU-50/110/150
BVH-500A
DC CORD (2 m)
SUPPLIED WITH
AC-500/550
AC ADAPTOR
AC-500/550
(FISHER)
CCT-50 (50 m)
CCT-100 (100 m)
CCT-150 (150 m)
CCT-300 (300 m)
(KINGS)
CCT-K50 (50 m)
CCT-K100 (100 m)
CCT-K150 (150 m)
CCT-K300 (300 m)
TRIAX CABLE
CCU-355/355P

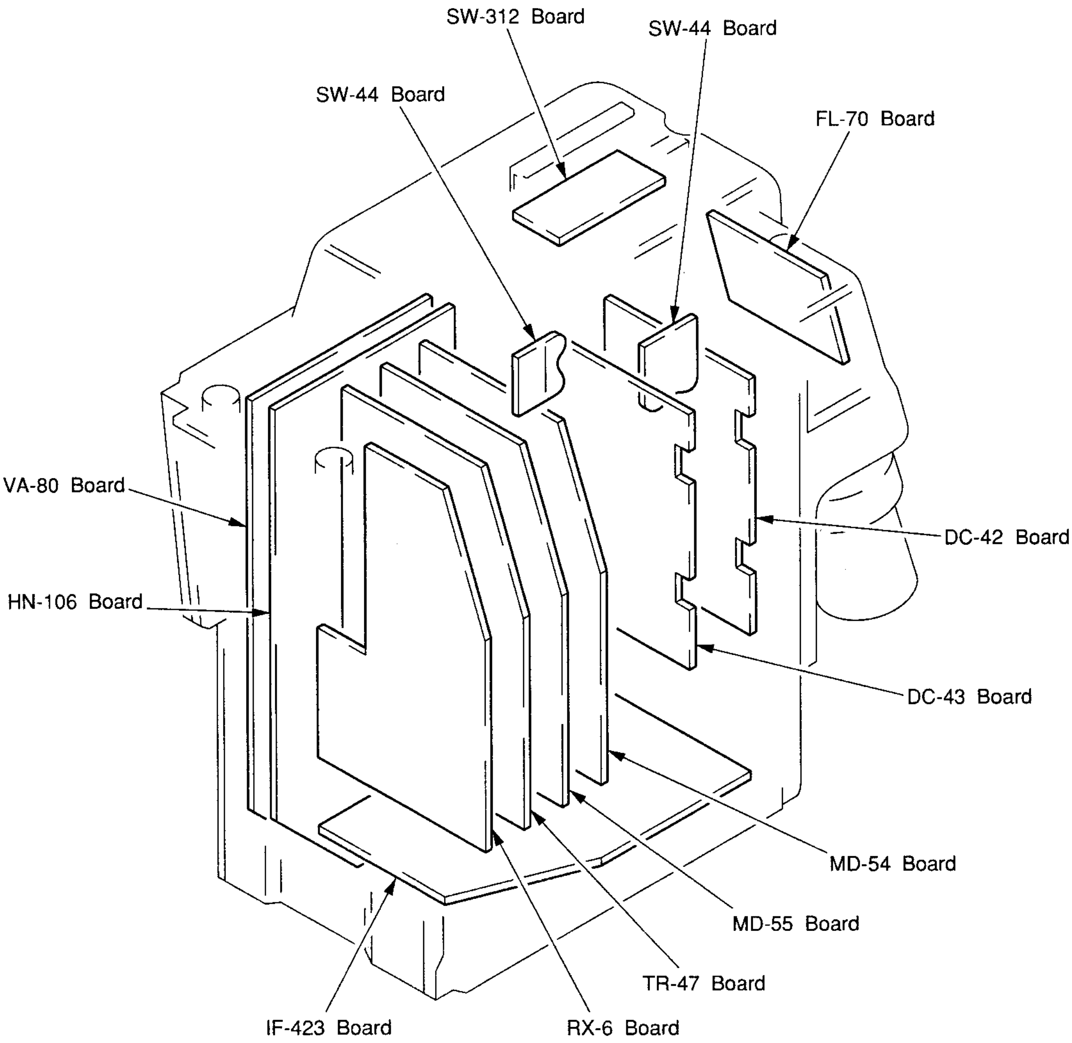
2-7. SYSTEM CONFIGURATION



RETURN VIDEO SELECTOR
CAC-6
BVF-55/55CE
BVP-90/90P
BVP-70IS/70ISP
BVP-7/7P/7A/7AP
BVP-50/50P
CA-55A / 55AP
DC-310
NP-1A/1B×2
BATTERY
CHARGER
BC-1WA/1WB
DC-210
BP-90A
DC-300
BVW-25/35/50
BVV-5
VA-5
26P
CCZ-2 (2 m)
CCZ-10 (10 m)
26P
26P
CCZQ-2 (2 m)
CCZQ-10 (10 m)
14P
AC ADAPTOR
AC-500/550
BVU-800/820
BVW-75
BVU-50/110/150
BVH-500A
DC CORD (2 m)
SUPPLIED WITH
AC-500/550
AC ADAPTOR
AC-500/550
(FISHER)
CCT-50 (50 m)
CCT-100 (100 m)
CCT-150 (150 m)
CCT-300 (300 m)
(KINGS)
CCT-K50 (50 m)
CCT-K100 (100 m)
CCT-K150 (150 m)
CCT-K300 (300 m)
TRIAX CABLE
CCU-355/355P

第3章
サービスインフォメーション

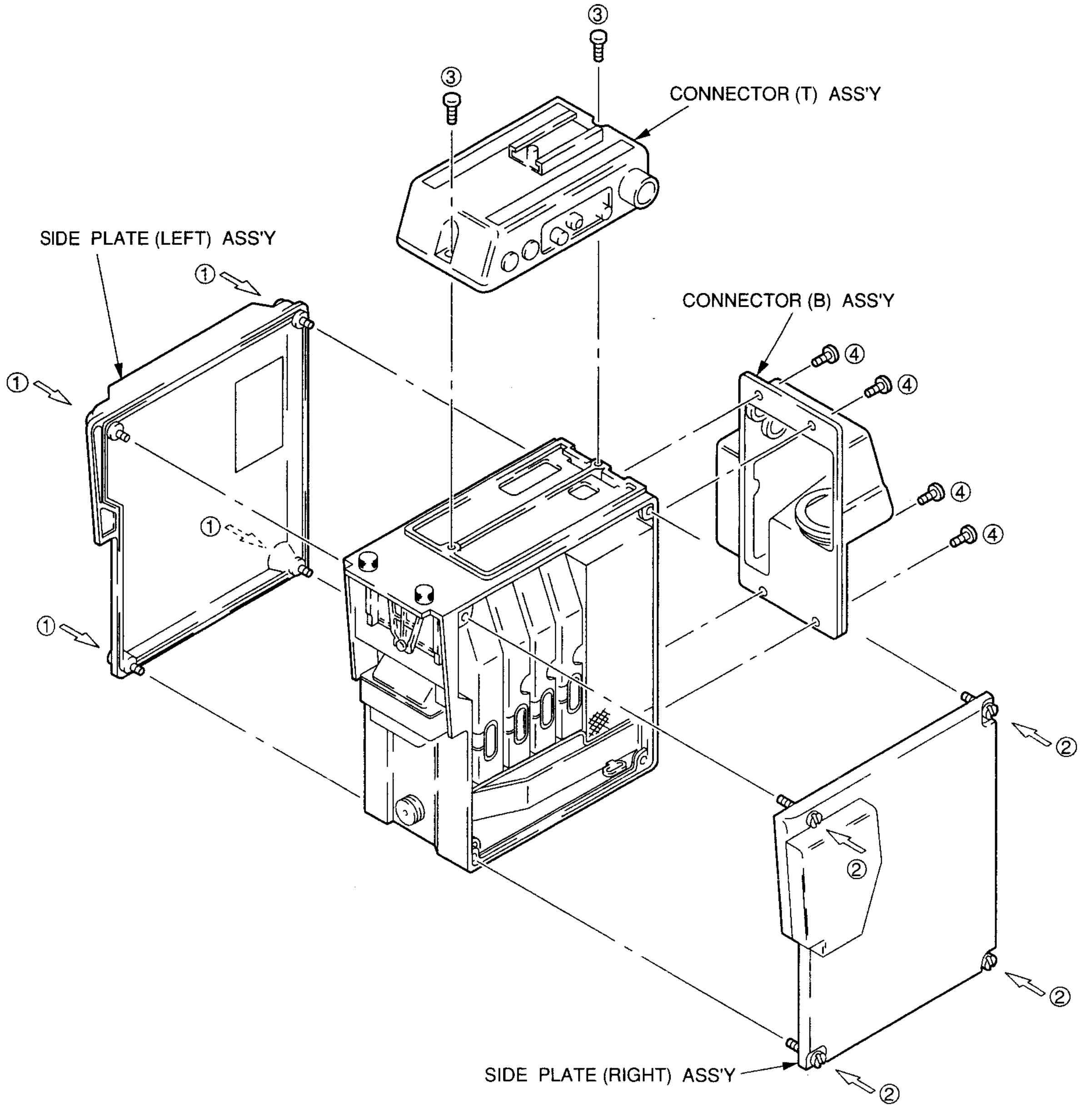
3-1. 主要部品配置図


SW-312 Board
SW-44 Board
SW-44 Board
FL-70 Board
VA-80 Board
HN-106 Board
DC-42 Board
DC-43 Board
MD-54 Board
MD-55 Board
TR-47 Board
IF-423 Board
RX-6 Board

3-2. 主要部品の交換方法

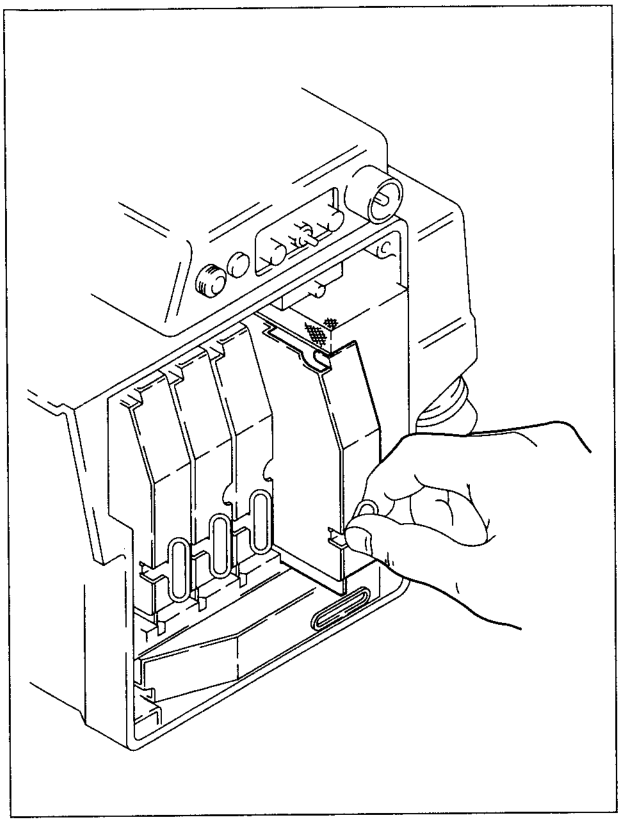
3-2-1. 外装の外し方

1. SIDE PLATE (LEFT) Ass'yを取り付けている4本のLID SCREW ① (M 4×18)をゆるめ, SIDE PLATE (LEFT) Ass'yを外す。
2. SIDE PLATE (RIGHT) Ass'yを取り付けている4本のLID SCREW ② (M 4×18)をゆるめ, SIDE PLATE (RIGHT) Ass'yを外す。
3. CONNECTOR (T) Ass'yを取り付けている2本のねじ③ (+B 5×8) を外し, CONNECTOR (T) Ass'yを外す。
4. CONNECTOR (B) Ass'yを取り付けている4本のねじ④ (+B 4×8) を外し, CONNECTOR (B) Ass'yを外す。


③
③
CONNECTOR (T) ASS'Y
SIDE PLATE (LEFT) ASS'Y
①
①
CONNECTOR (B) ASS'Y
④
④
①
④
④
①
②
②
②
②
SIDE PLATE (RIGHT) ASS'Y

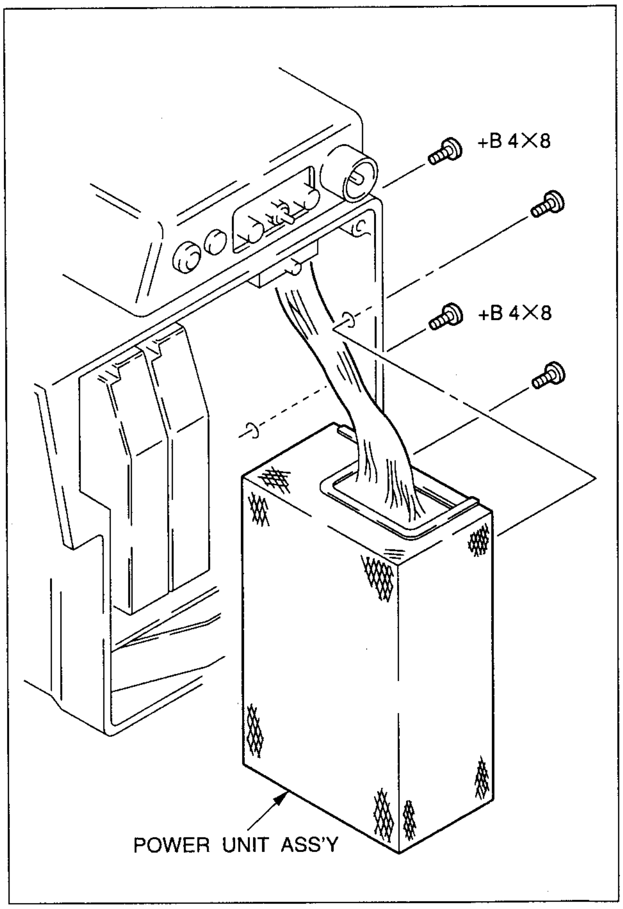
3-2-2. カード基板の外し方

図のようにカード基板に付いている引き抜きレバーを引きます。



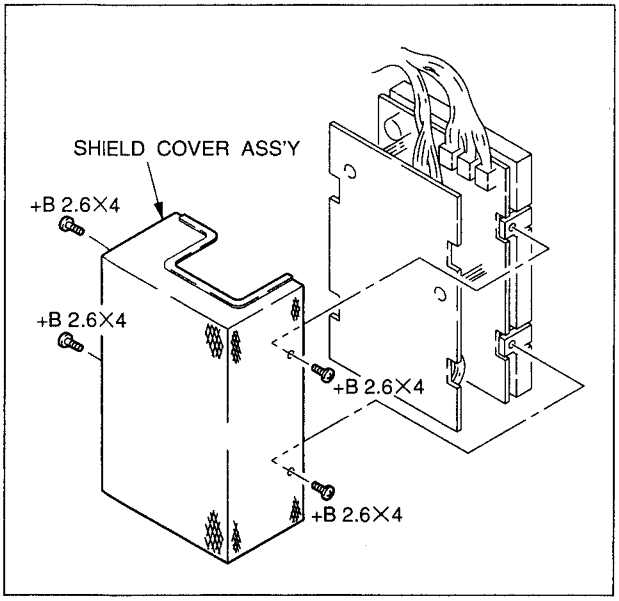
3-2-3. DC-42/43基板の交換方法

1. 外装の外し方を参照し, SIDE PLATE (RIGHT) Ass'yおよびCONNECTOR (B) Ass'yを外す。
2. カード基板の外し方を参照し, MD基板を外す。
3. 図に示す4本のねじ (+B 4×8) を外し, POWER UNIT Ass'yを外す。

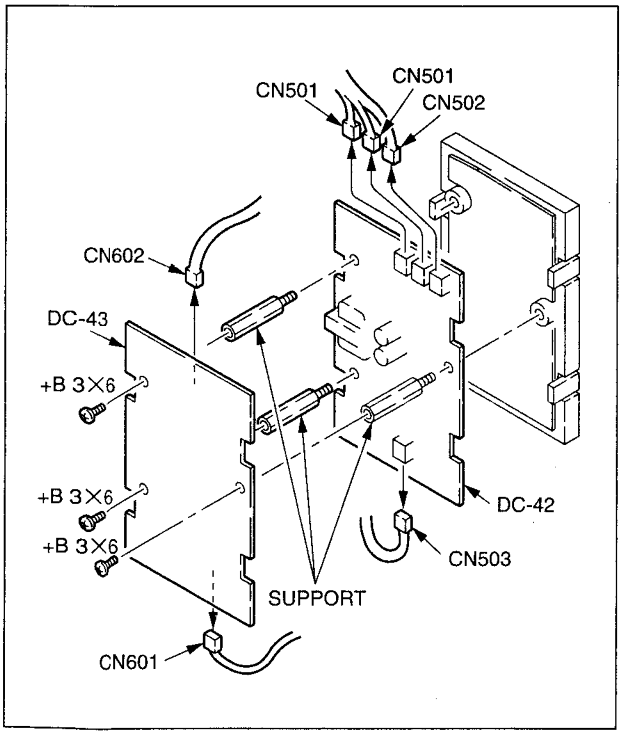


+B 4X8
+B 4X8
POWER UNIT ASS'Y

4. 図に示す4本のねじ (+B 2.6×4) を外し, SHEILD COVER Ass'y を外す。


SHIELD COVER ASS'Y
+B 2.6×4
+B 2.6×4
+B 2.6×4
+B 2.6×4

5. 図に示す3本のねじ (+B 3×6) およびCN601, 602のコネクターを外してDC-43基板を外す。
更に3本のSUPPORTおよびCN501, 502, 503, 504のコネクターを外してDC-42基板を外す。


CN501
CN501
CN502
CN602
DC-43
+B 3×6
+B 3×6
+B 3×6
DC-42
CN503
SUPPORT
CN601

6. 1～5の逆の手順で新しいDC-42/43基板を取り付ける。

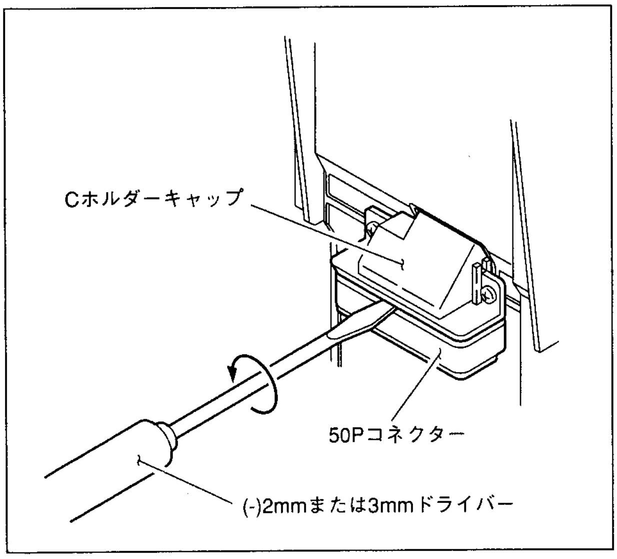
3-3. サービス上の注意事項

3-3-1. カメラ接続端子 (50Pコネクター) 交換時の注意事項

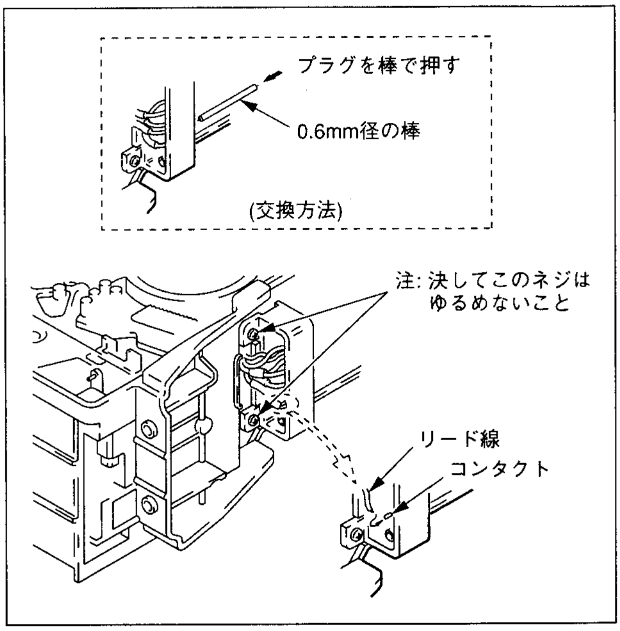
カメラ接続端子 (50Pコネクター) は，カメラマウント (Cシュー) との正確な位置関係を保ち，いかなるベータカムカメラともドッキングが出来るようにするため精度の高い特殊な治具 (CVドッキング治具) を使って取り付けられています。

従って，Vコネクターホルダーや，50Pコネクターを取り外すことは，特別な場合を除き行わないようにして下さい。もし，カメラ接続端子 (50Pコネクター) を交換したり，誤って固定ねじを緩めてしまった場合は，ソニーのサービス窓口に相談するか，又は，下記の手順に従って点検して下さい。

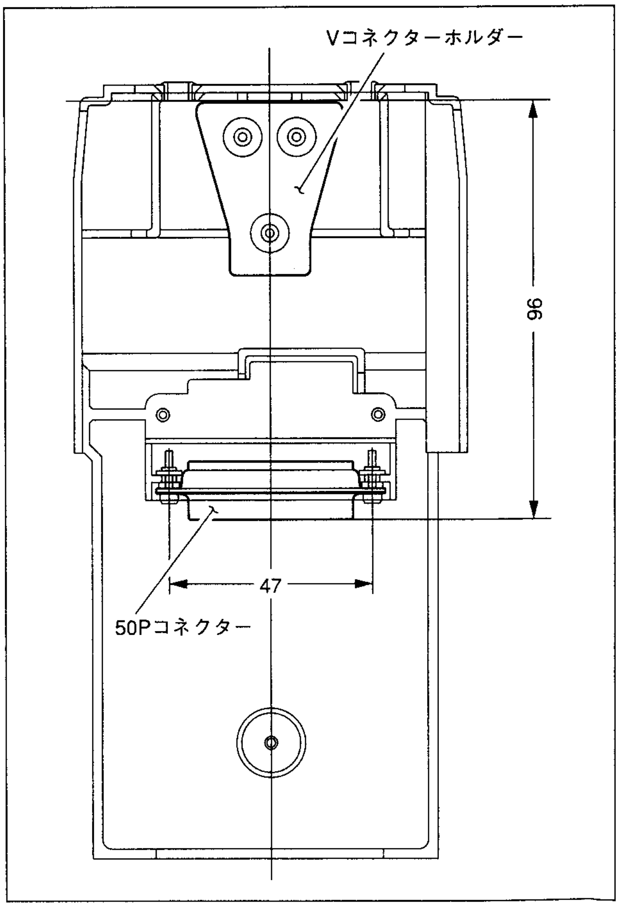
- 50Pコネクター部のチェックをする時には，Cホルダーキャップを図のように外す。


Cホルダーキャップ
50Pコネクター
(-)2mmまたは3mmドライバー

- 50Pコネクター部の線材がコネクター部で切れている時には，線材をコンタクトに半田付けする。
- コンタクトが接触不良の時にはコンタクトを図のように取り外して交換する。


プラグを棒で押す
0.6mm径の棒
(交換方法)
注: 決してこのネジは
ゆるめないこと
リード線
コンタクト

- もしも50Pコネクター，Vコネクターホルダーを取り外した時には，下記寸法を満足する位置にスケールを用いて取り付けること。取り付け後手持ちのカメラ等と接続し，接続が確実であることを確認する。


Vコネクターホルダー
96
47
50Pコネクター

3-3-2. PROM IC

IF-423基板のIC17はPROM ICである。PROM ICは，オリジナル品名の末尾の下に次に示す品名が記載されていること。

IC17; TMS27C512-CA-5XA-1.00
オリジナル品名　プログラム名

オリジナル品名のみ（プログラム化されていない）は絶対に使用しないこと。
又，PROM ICはバージョン変更される場合があります。その場合，プログラム名が変わります。

3-3-3. 補修用部品の注意事項

(1) 安全重要部品

回路図，分解図，電気部品表中，⚠印および ▨ で囲まれた部品は安全性を維持するために重要な部品である。従って，これらの部品を交換するには必ず指定の部品と交換すること。

(2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがある。これは部品の共通化，改良等によるものである。分解図や電気部品表中には現時点での共通化された部品が記載されている。

(3) 部品の在庫

分解図，電気部品表中，SP欄が“S”で示されている部品は常時在庫している。
SP欄が“O”で示されている部品は交換頻度が低い部品であるので在庫しないことがあり，納期が長くなることがある。

(4) コンデンサ，インダクタ，抵抗の単位

回路図，分解図，電気部品表中，特に明記したものを除き，下記の単位は省略されている。

コンデンサ：μF
インダクタ：μH
抵　　抗：Ω

3-4. 治工具

(治具名称)	(ソニー部品番号)
延長基板“EX-190” (付属品)	A-7513-880-A

第4章
調整要項

4-1. 準備

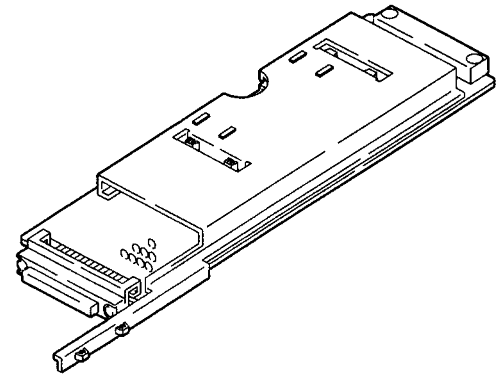
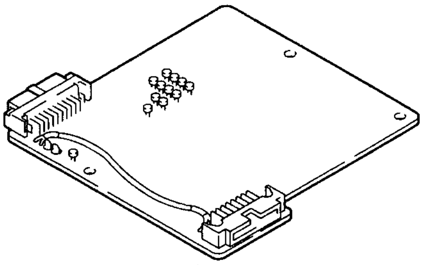
4-1-1. 必要機器

- **測定器**
  - デジタル電圧計
  - 周波数カウンター
  - オシロスコープ (300 MHz以上)
  - 低周波発振器

- **関連機器**

カラービデオカメラ	BVP-90/70/7
カメラコントロールユニット	CCU-355
カメラアダプター	CMA-8
トライアキシャルケーブル	CCTケーブル (基準: 150 m)

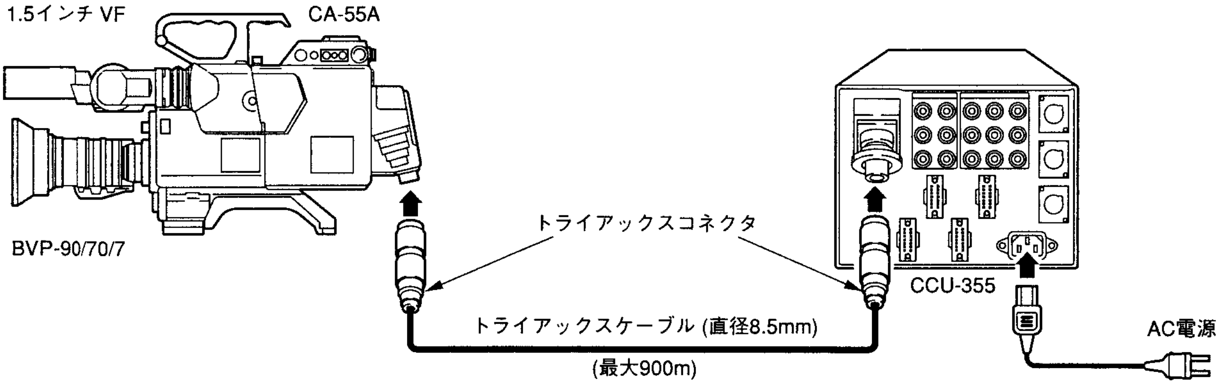
- **治工具**

A-7513-864-A	延長基板 EX-189
CCU-355 付属品 	
A-7513-880-A	**延長基板 EX-190**
CA-55A 付属品 	

4-1-2. 注意事項

- 基板を引き抜く場合は必ずPOWERスイッチを「OFF」にして下さい。
- 調整を始める前に約10分間ウォーミングアップを行って下さい。

4-1-3. 接続


1.5インチ VF
CA-55A
BVP-90/70/7
トライアックスコネクタ
CCU-355
トライアックスケーブル (直径8.5mm)
(最大900m)
AC電源

4-1-4. 初期セッティング

• CA-55A

POWERスイッチ→CCU ON
S1 (R)/MD-54基板→ON
S2 (G)/MD-54基板→ON
S3 (B)/MD-54基板→ON

• BVP-90/70/7

CAMERA/VTRスイッチ→ON/STBY

• CCU-355

MAIN POWERスイッチ→ON
CAMERA POWERスイッチ→ON
S1 (TRIAX TEST)/AT-26基板→ON
OUTPUTスイッチ→CAM

4-2. 調整手順

ステップ1. 電源系調整

1-1. +9.5 V調整
1-2. +9 V調整

ステップ2 IF-423基板調整

2-1. H BLKG PHASE調整
2-2. H BLKG WIDTH調整
2-3. V BLKG WIDTH調整

ステップ3 VA-80基板調整

3-1. SAMPLE PULSE調整 (1)
3-2. SAMPLE PULSE調整 (2)
3-3. SAMPLE PULSE調整 (3)
3-4. Y GAIN調整
3-5. R-Y GAIN調整
3-6. B-Y GAIN調整
3-7. BATTERY ALARM SET調整
3-8. RET VIDEO GAIN調整

ステップ4 MD-54基板調整

4-1. R, G, Bレベル調整
4-2. キャリアレベル調整
4-3. SAMPLEレベル調整
4-4. SYNCレベル調整
4-5. RFレベル調整

ステップ5 MD-55基板調整

5-1. 36 MHz調整 (1)
5-2. 36 MHz調整 (2)
5-3. 18 MHz調整
5-4. SYNCレベル調整
5-5. SAMPLEレベル調整
5-6. CHROMA RF調整 (1)
5-7. CHROMA RF調整 (2)

ステップ6 TR-47基板調整

6-1. 搬送周波数調整
6-2. RFレベル調整
6-3. チューニング調整
6-4. H CONTレベル調整
6-5. MICレベル調整
6-6. CHU INCOMレベル調整
6-7. CCU INCOM復調レベル調整
6-8. PGM復調レベル調整

ステップ7 RX-6基板調整

7-1. PLL自走周波数調整
7-2. リターンビデオレベル調整

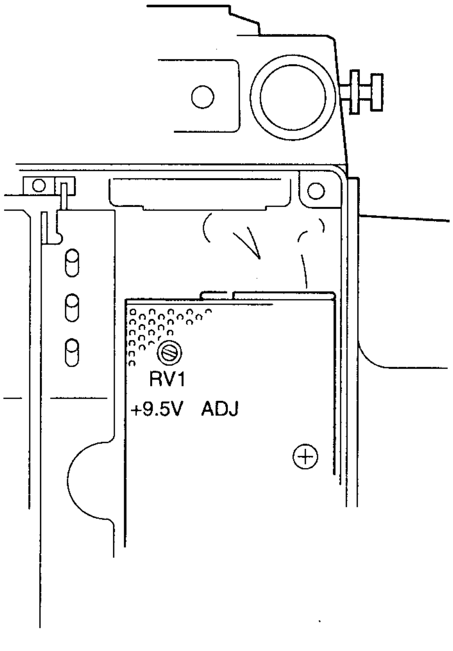
ステップ1. 電源系調整

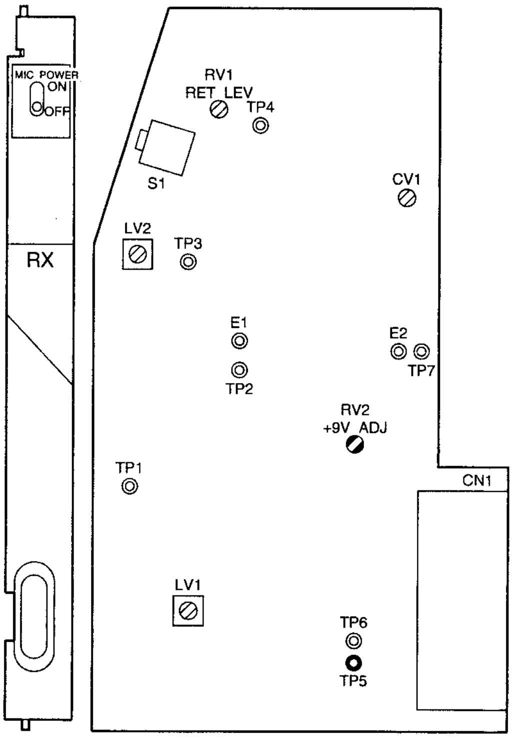
1-1. +9.5 V調整

基板延長: RX-6
測定器: デジタルボルトメーター
測定点: B4/延長基板
調整箇所: ⊘RV1/DC-43 BOARD
規格: 9.5±0.1 V

1-2. +9 V調整

基板延長: RX-6
測定器: デジタルボルトメーター
測定点: TP5
調整箇所: ⊘RV2 (+9 V ADJ)
規格: 9.0±0.01 V



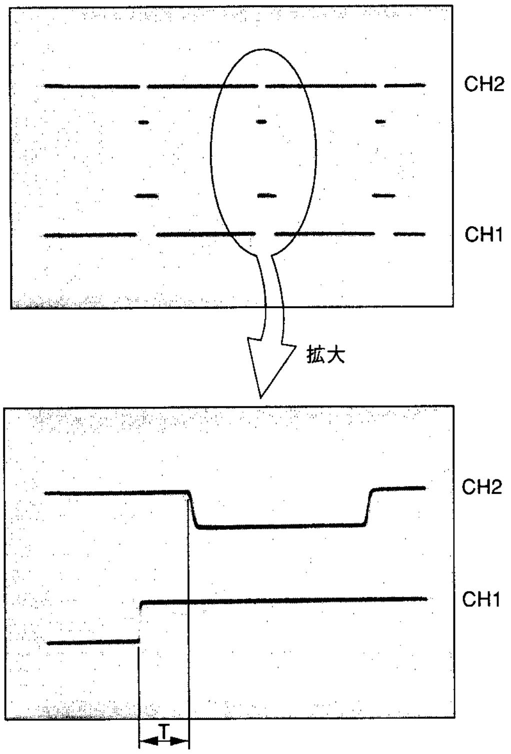

MIC POWER
ON
OFF
RX
RV1
RET LEV
TP4
S1
CV1
LV2
TP3
E1
TP2
E2
TP7
RV2
+9V ADJ
TP1
CN1
LV1
TP6
TP5

RX-6 BOARD (COMPONENT SIDE)

ステップ2.　IF-423基板調整

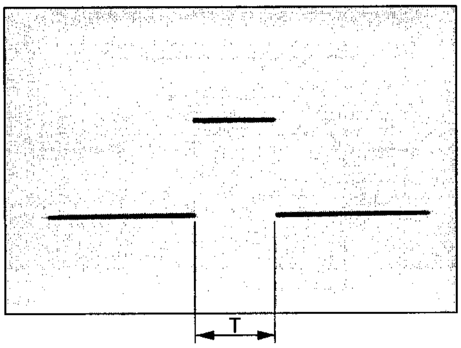
2-1. H BLKG PHASE調整

基板延長: IF-423
測定器: オシロスコープ
測定点: CH1 B8/延長基板
CH2 B11/延長基板
調整箇所: ⊘RV1 (H BLKG PHASE)
規格: T=1.4±0.1 [μS]



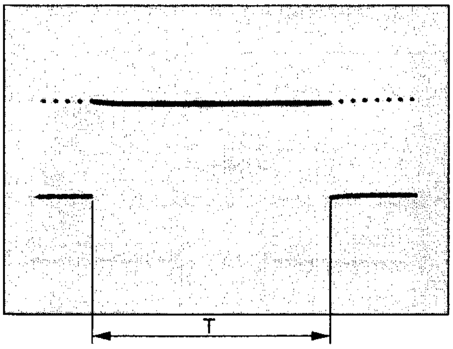
2-2. H BLKG WIDTH調整

基板延長: IF-423
測定器: オシロスコープ
測定点: B8/延長基板
調整箇所: ⊘RV4 (H BLKG WIDTH)
規格: T=10.9±0.2 [μS]



2-3. V BLKG WIDTH調整

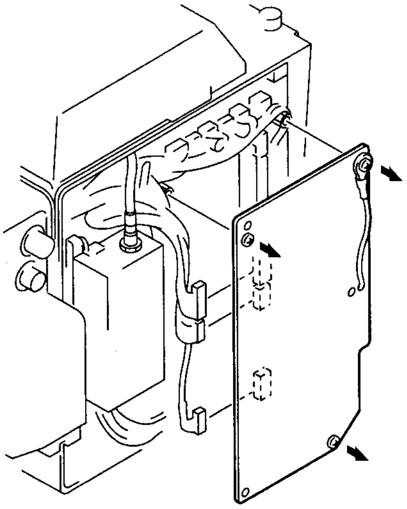
基板延長: IF-423
測定器: オシロスコープ
測定点: B8/延長基板
トリガー: A5/延長基板
調整箇所: ⊘RV3 (V BLKG WIDTH)
規格: T=20 H, 1270 [μS]



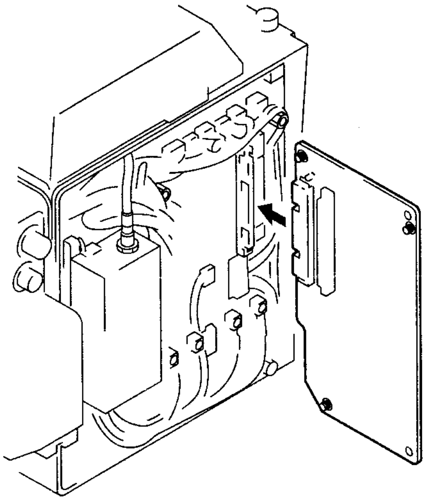
ステップ3.　VA-80基板調整

準備

1. VA-80基板を止めているネジ3本をはずしCN203, 204, 205についているハーネスを外します。

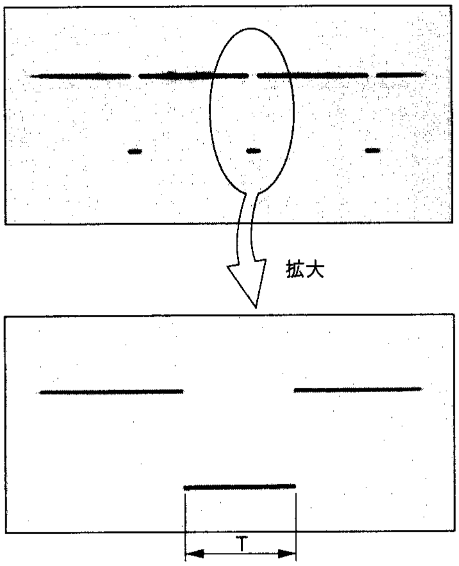


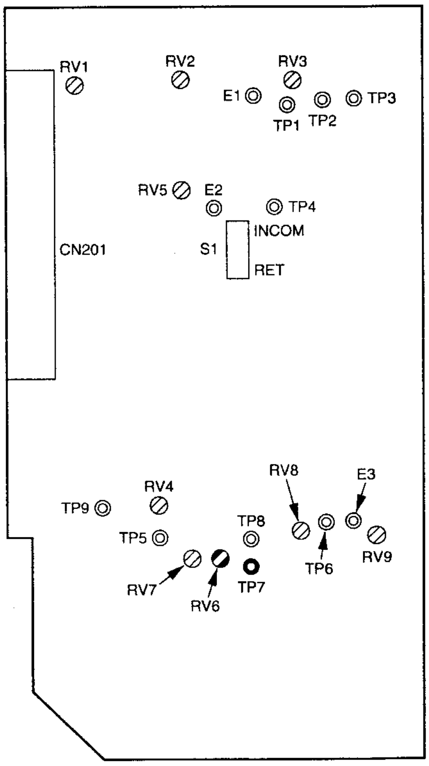
2. VA-80基板のCN201をHN-106基板のCN-106に差し込みます。この状態で調整を行って下さい。



3-1.　SAMPLE PULSE (1) 調整

測定器:　オシロスコープ
測定点:　TP7
調整箇所: ⊘RV6 (H PHASE)
規格:　T=6.0±0.2 [μS]

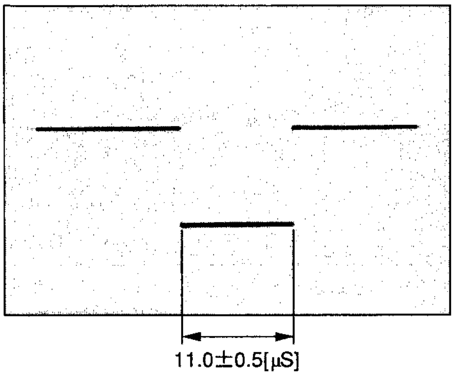



RV1
RV2
RV3
E1
TP1
TP2
TP3
RV5
E2
TP4
CN201
S1
INCOM
RET
RV8
E3
RV4
TP9
TP8
TP5
TP6
RV9
RV7
RV6
TP7

VA-80 BOARD　(COMPONENT SIDE)

3-2. SAMPLE PULSE (2) 調整

測定器: オシロスコープ
測定点: TP9
調整箇所: ⊘RV7 (H WIDTH)
規格: 11.0±0.5 [μS]

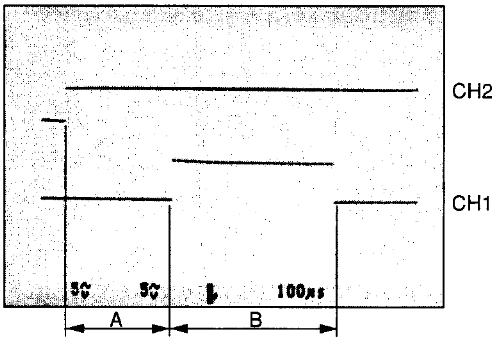


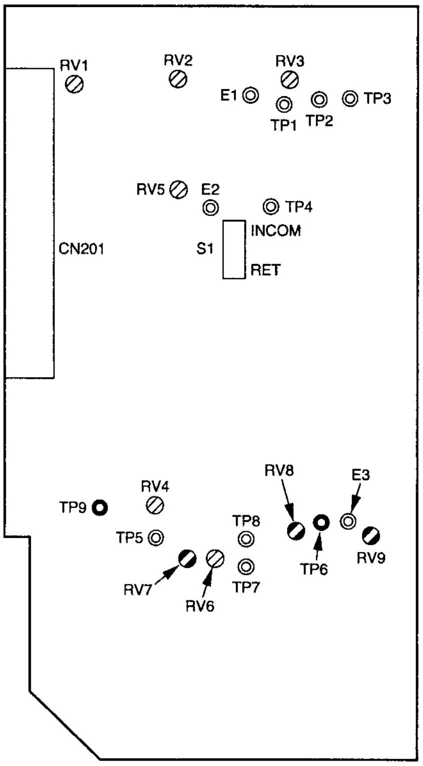
3-3. SAMPLE PULSE (3) 調整

基板延長: IF-423
測定器: オシロスコープ
測定点: TP6
調整箇所: ⊘RV8 (SAMPLE PULSE PHASE)
⊘RV9 (SAMPLE PULSE WIDTH)

調整手順:

1. オシロスコープCH-2のプローブをA5/延長基板にあてCH-1のプローブをTP6/VA-80にあてます。
2. CH-1の波形Aが286±10 [μS]になるように⊘RV8を調整します。
3. CH-1の波形Bが440±10 [μS]になるように⊘RV9を調整します。




RV1
RV2
RV3
E1
TP1
TP2
TP3
RV5
E2
TP4
INCOM
S1
RET
CN201
RV8
E3
RV4
TP9
TP8
TP5
TP6
RV9
TP7
RV7
RV6

VA-80 BOARD (COMPONENT SIDE)

3-4. Y GAIN調整

準備

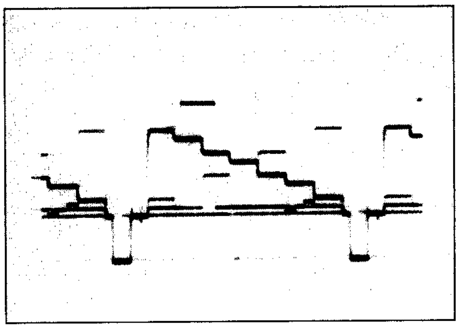
1. CCUのPOWER SWをOFFにしてトライアックスケーブルを外します。
2. CA-55AのDC INコネクターとCMA-8をケーブルで接続しCA-55AのPOWER SWをEXTにします。

測定器: オシロスコープ
測定点: TP1
調整箇所: ⊘RV1 (Y GAIN)

調整手順:

1. CN202-3ピンの半田面にTP端子を半田付し、オシロスコープで電圧を計ります。(入力振幅)
2. TP1の電圧をオシロスコープで計り (出力振幅) 規格に入るように⊘RV1を調整します。

規格: $\frac{\text{出力振幅}}{\text{入力振幅}} = 2.0\pm0.01$



3-5. R-Y GAIN調整

準備

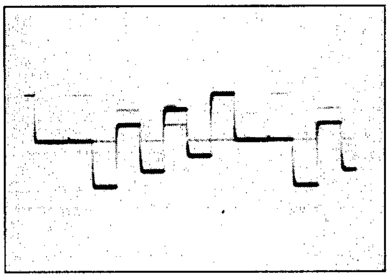
1. CCUのPOWER SWをOFFにしてトライアックスケーブルを外します。
2. CA-55AのDC INコネクターとCMA-8をケーブルで接続しCA-55AのPOWER SWをEXTにします。

測定器: オシロスコープ
測定点: TP2
調整箇所: ⊘RV2 (R-Y GAIN)

調整手順:

1. CN202-4ピンの半田面にTP端子を半田付し、オシロスコープで電圧を計ります。(入力振幅)
2. TP2の電圧をオシロスコープで計り (出力振幅) 規格に入るように⊘RV2を調整します。

規格: $\frac{\text{出力振幅}}{\text{入力振幅}} = 2.0\pm0.01$



3-6. B-Y GAIN調整

準備

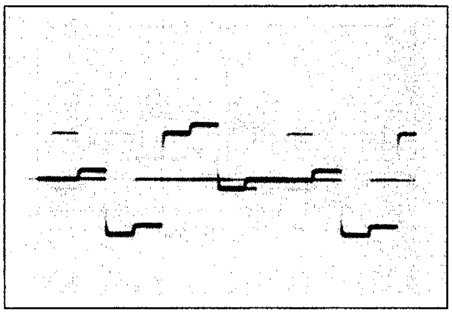
1. CCUのPOWER SWをOFFにしてトライアックスケーブルを外します。
2. CA-55AのDC INコネクターとCMA-8をケーブルで接続しCA-55AのPOWER SWをEXTにします。

測定器: オシロスコープ
測定点: TP3
調整箇所: ⊘RV3 (B-Y GAIN)

調整手順:

1. CN202-5ピンの半田面にTP端子を半田付し、オシロスコープで電圧を計ります。(入力振幅)
2. TP3の電圧をオシロスコープで計り (出力振幅) 規格に入るように⊘RV3を調整します。

規格: $\frac{\text{出力振幅}}{\text{入力振幅}} = 2.0 \pm 0.01$



3-7. BATTERY ALARM SET調整

このボリュームは調整がシビアであり工場出荷時に厳密に調整されているので回路に異常がない限り調整は行わないで下さい。

準備

POWER SW→ EXT
CN201-18ピン, 17ピンの半田面にTP端子を半田付する。

測定器: 電圧可変器
デジタル電圧計
オシロスコープ
測定点: CN201-18ピン (GND: E1)
調整箇所: ⊘RV4 (BATT ALARM SET)

調整手順:

1. ⊘RV4を右一杯に回します。
2. デジタル電圧計をCAのEXT DCコネクターに接続し、11.2 Vを入力します。(デジボルでCN201-17ピンとGND間が11.2 Vになっていることを確認する)
3. オシロスコープのプローブをCN201-18ピン (GND: E1) にあて、⊘RV4をゆっくり左に回していきDC電圧がLOW (GND) とHIGH (11.2 V) の間を動きはじめた所で止めます。

3-8. RET VIDEO GAIN調整

準備

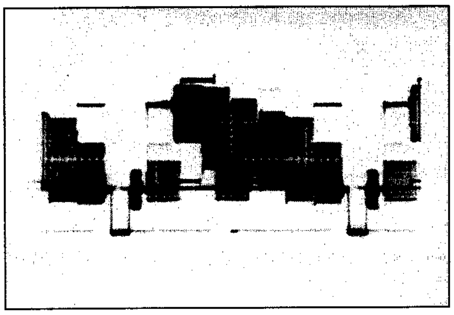
- RET1とRET2をBNCケーブルで接続
- RET2のもう一つのCNを75Ω終端

測定器: オシロスコープ
測定点: TP4
調整箇所: ⊘RV5 (RET VIDEO GAIN)

調整手順:

1. CN202-35ピンの半田面にTP端子を半田付し、オシロスコープで電圧を計ります。(入力振幅)
2. TP4の電圧をオシロスコープで計り (出力振幅) 規格に入るように⊘RV5を調整します。

規格: $\frac{\text{出力振幅}}{\text{入力振幅}} = 2.0 \pm 0.01$



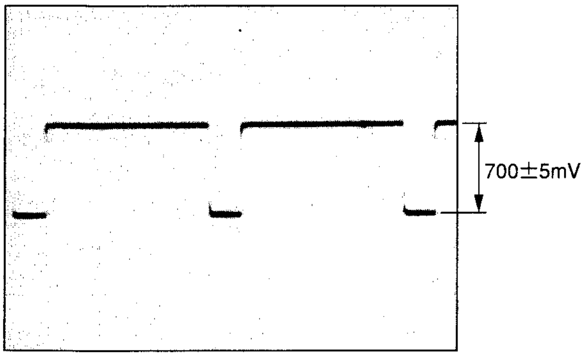
ステップ4.　MD-54基板調整

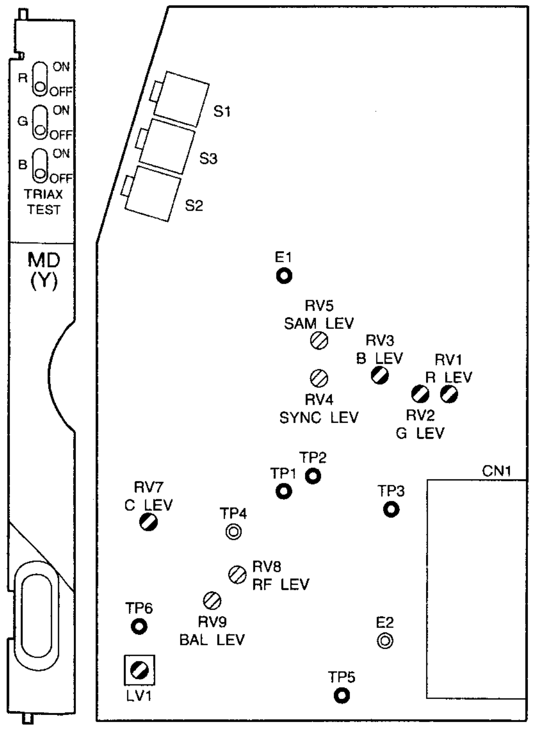
4-1.　R, G, Bレベル調整

基板延長: MD-54
測定器:　オシロスコープ
測定点:　TP1 (R), TP2 (G), TP3 (B)
GND: E1
調整箇所: ⊘RV1 (R LEV)
⊘RV2 (G LEV)
⊘RV3 (B LEV)

調整手順:

1. オシロスコープのプローブをTP2にあて、波形のレベルが700±5 mVになるように⊘RV2を調整します。
2. [Rch] [Bch] は [Gch] のレベルの±5 mVになるように調整します。




R ON OFF
G ON OFF
B ON OFF
TRIAX TEST
MD (Y)
S1
S3
S2
E1
RV5 SAM LEV
RV3 B LEV
RV1 R LEV
RV4 SYNC LEV
RV2 G LEV
TP2
TP1
TP3
CN1
RV7 C LEV
TP4
RV8 RF LEV
RV9 BAL LEV
TP6
E2
LV1
TP5

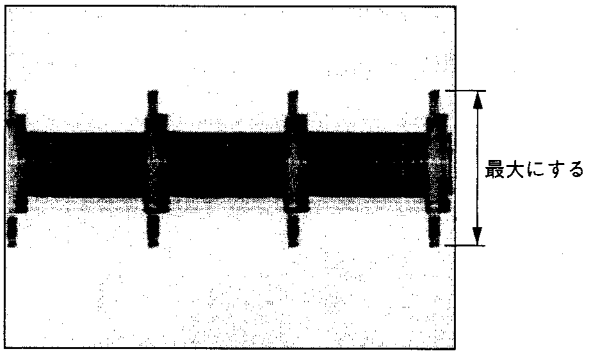
MD-54 BOARD (COMPONENT SIDE)

4-2.　キャリアレベル調整

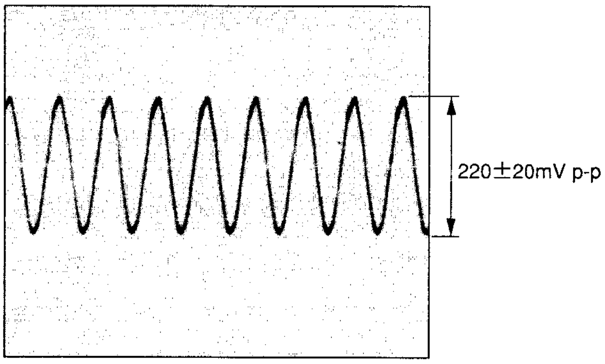
基板延長: MD-54
測定器:　オシロスコープ
測定点:　TP5 (GND: E2)
TP6 (GND: E2)
調整箇所: ⊘LV1
⊘RV7 (C LEV)

調整手順:

1. TP5のレベルが最大になるように⊘LV1を調整します。



2. TP6のレベルが200±20 mV p-pになるように⊘RV7を調整します。

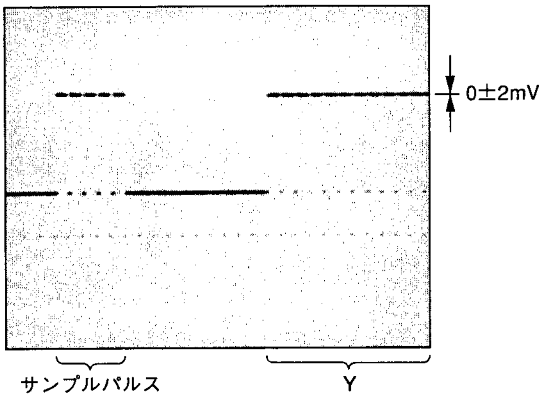


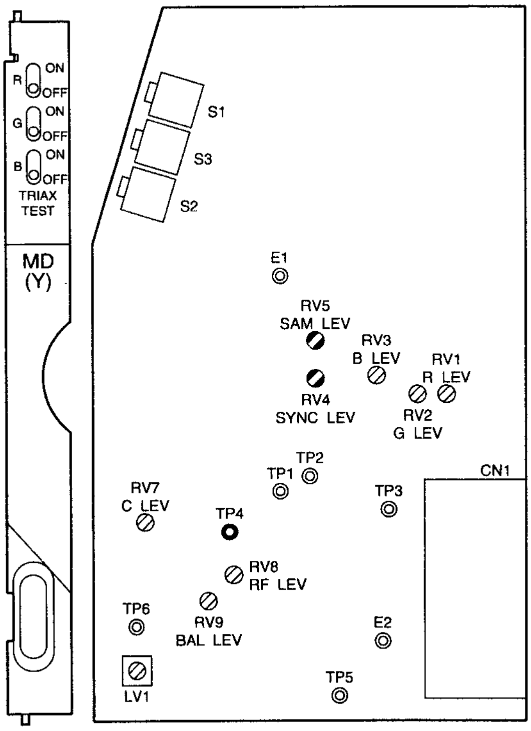
4-3. SAMPLEレベル調整

基板延長: MD-54
測定器: オシロスコープ
測定点: TP4
調整箇所: ⊘RV5 (SAM LEV)

調整手順:

1. ⊘RV5にてサンプルパルスとYのレベル差が0±2 mVになるように調整します。

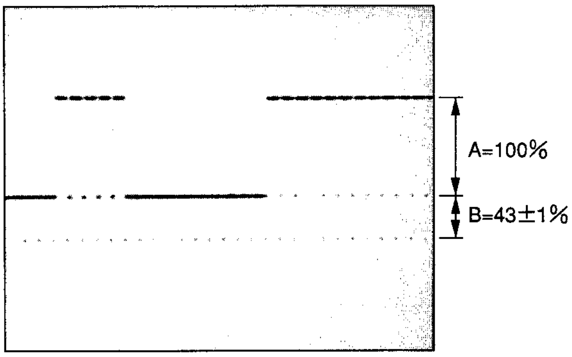

0±2mV
サンプルパルス
Y


R
ON
OFF
G
ON
OFF
B
ON
OFF
TRIAX
TEST
MD
(Y)
S1
S3
S2
E1
RV5
SAM LEV
RV3
B LEV
RV1
R LEV
RV4
SYNC LEV
RV2
G LEV
TP2
TP1
CN1
RV7
C LEV
TP3
TP4
RV8
RF LEV
TP6
RV9
BAL LEV
E2
TP5
LV1

MD-54 BOARD (COMPONENT SIDE)

4-4. SYNCレベル調整

基板延長: MD-54
測定器: オシロスコープ
測定点: TP4
調整箇所: ⊘RV4 (SYNC LEV)
規格: B=43±1%



4-5. RFレベル調整

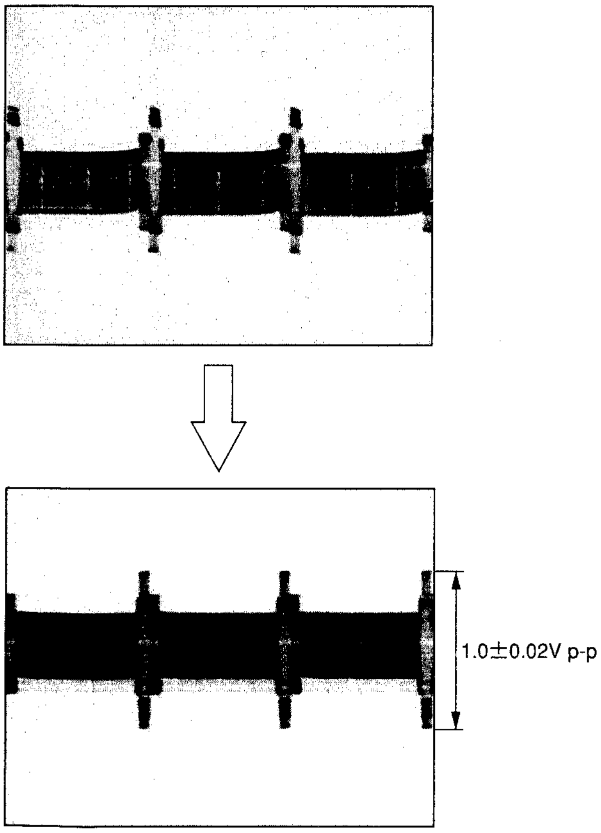
準備

CCU-355のDM-67基板を延長します。
CCU-355とCA-3511を1 m以内のトライアックスケーブルで接続します。

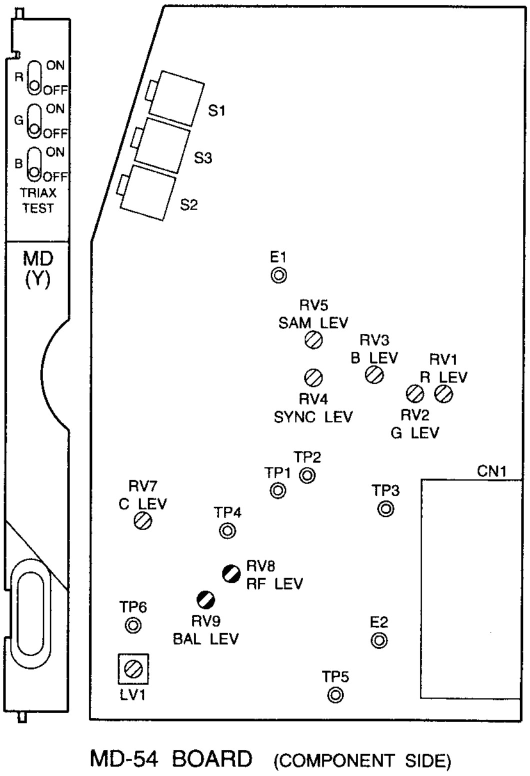
基板延長: MD-54
測定器: オシロスコープ
測定点: TP10 (GND: TP11) /CCU-355延長基板
調整箇所: ⊘RV8 (RF LEV)
⊘RV9 (BAL SET)

調整手順:

1. TP10の波形がフラットになるように⊘RV9を調整します。



2. TP10のレベルが1.0±0.02 V p-pになるように⊘RV8を調整します。


R
ON
OFF
G
ON
OFF
B
ON
OFF
TRIAX
TEST
MD
(Y)
S1
S3
S2
E1
RV5
SAM LEV
RV3
B LEV
RV1
R LEV
RV4
SYNC LEV
RV2
G LEV
TP2
TP1
RV7
C LEV
TP4
TP3
CN1
RV8
RF LEV
TP6
RV9
BAL LEV
E2
TP5
LV1

MD-54 BOARD (COMPONENT SIDE)

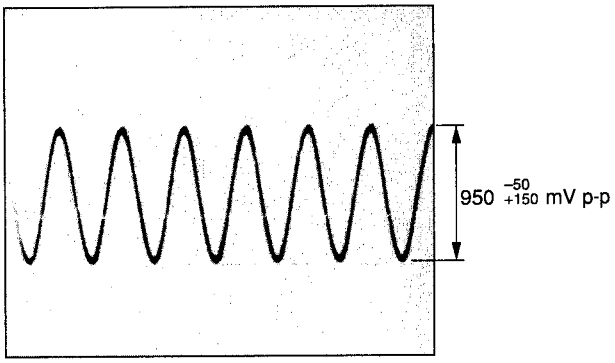
ステップ5.　MD-55基板調整

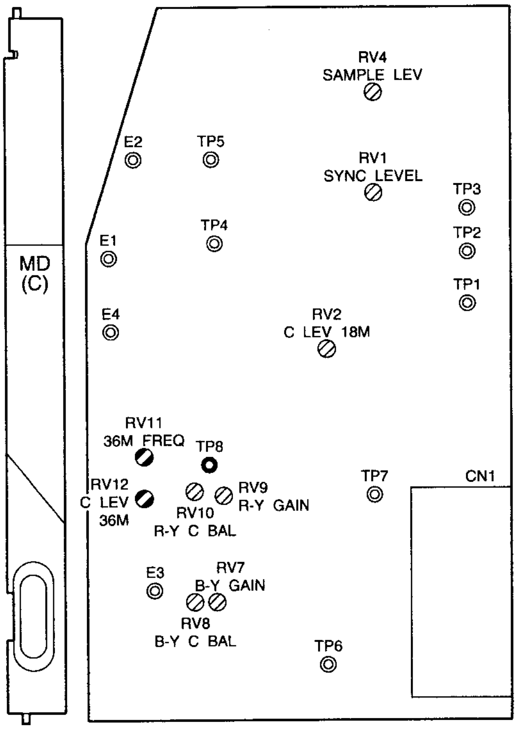
5-1.　36 MHz調整 (I)

基板延長: MD-55
測定器: 周波数カウンタ
測定点: TP8
調整箇所: ⊘RV11 (36 M FREQ)
規格: 36 MHz±10 Hz

5-2.　36 MHz調整 (II)

基板延長: MD-55
測定器: オシロスコープ
測定点: TP8
調整箇所: ⊘RV12 (C LEV 36 M)
規格: 950 $^{-50}_{+150}$ mVp-p

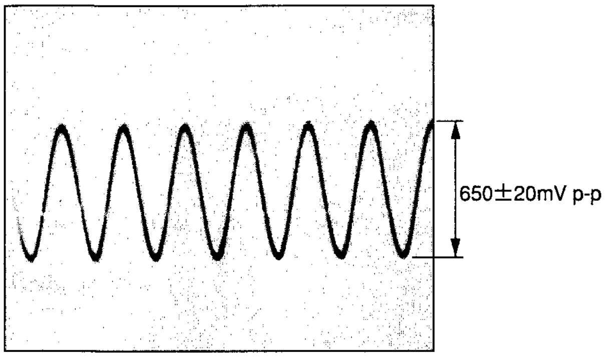

950 $^{-50}_{+150}$ mV p-p

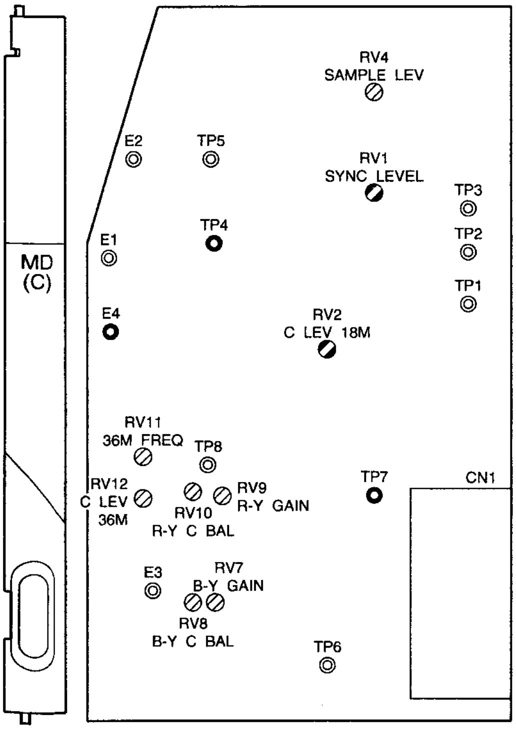

RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP2
TP1
E1
TP4
MD
(C)
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)

5-3. 18 MHz調整

基板延長: MD-55
測定器: オシロスコープ
測定点: TP7 (GND: E4)
調整箇所: ⊘RV2 (C LEV 18 M)
規格: 650±20 mV p-p



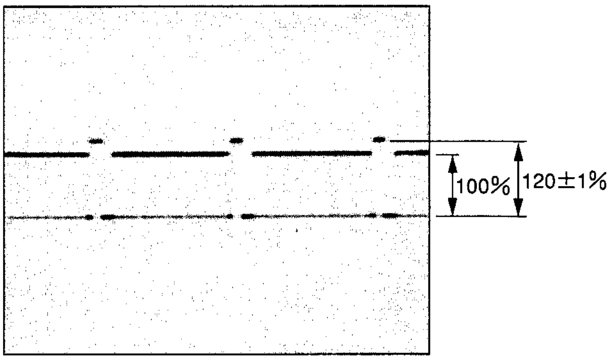

RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP4
TP2
E1
MD
(C)
TP1
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)

5-4. SYNCレベル調整

準備
- S2 (G), S3 (B)/MD-54→OFF

基板延長: MD-55
測定器: オシロスコープ
測定点: TP4 (GND: E1)
調整箇所: ⊘RV1 (SYNC LEVEL)
規格: 120±1 %

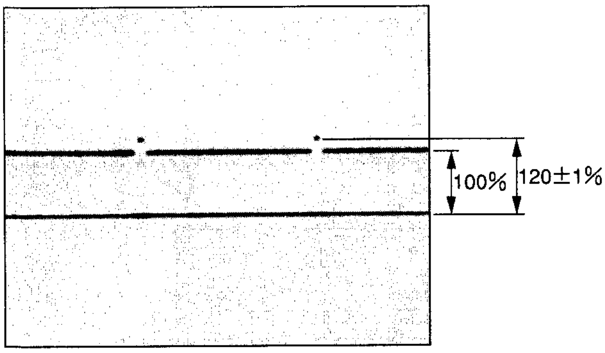


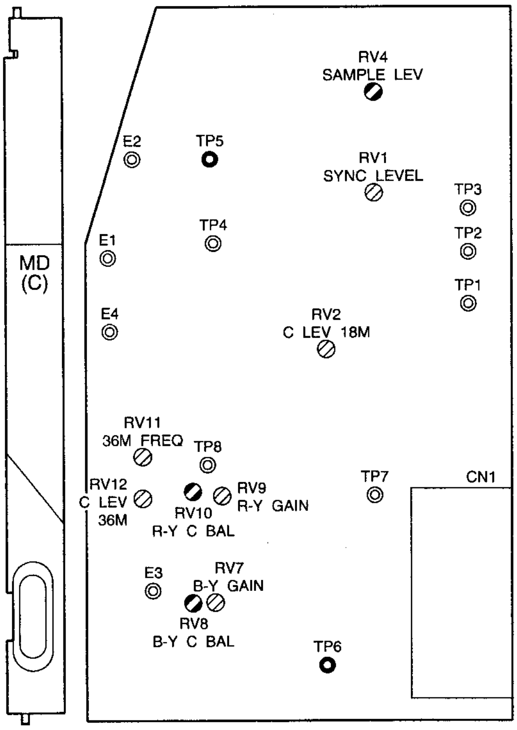
5-5. SAMPLEレベル調整

準備

- S1 (R), S2 (G)/MD-54→OFF

基板延長: MD-55
測定器: オシロスコープ
測定点: TP5
調整箇所: ⊘RV4 (SAMPLE LEV)
規格: 120±1 %




RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP2
TP1
TP4
E1
MD
(C)
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

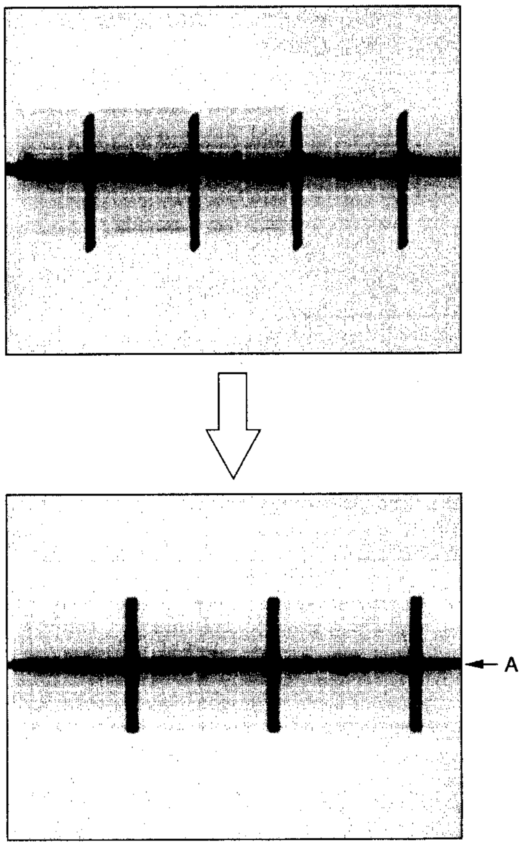
MD-55 BOARD (COMPONENT SIDE)

5-6. CHROMA RF調整 (I)

基板延長: MD-55
測定器: オシロスコープ
測定点: TP6 (GND: E3)
調整箇所: ⊘RV8 (B-Y C BAL)
⊘RV10 (R-Y C BAL)

調整手順:

1. TP6の波形がフラットになるように⊘RV10を調整します。



2. 波形の"A"の部分が最小になるように⊘RV8を調整します。

5-7. CHROMA RF調整（II）

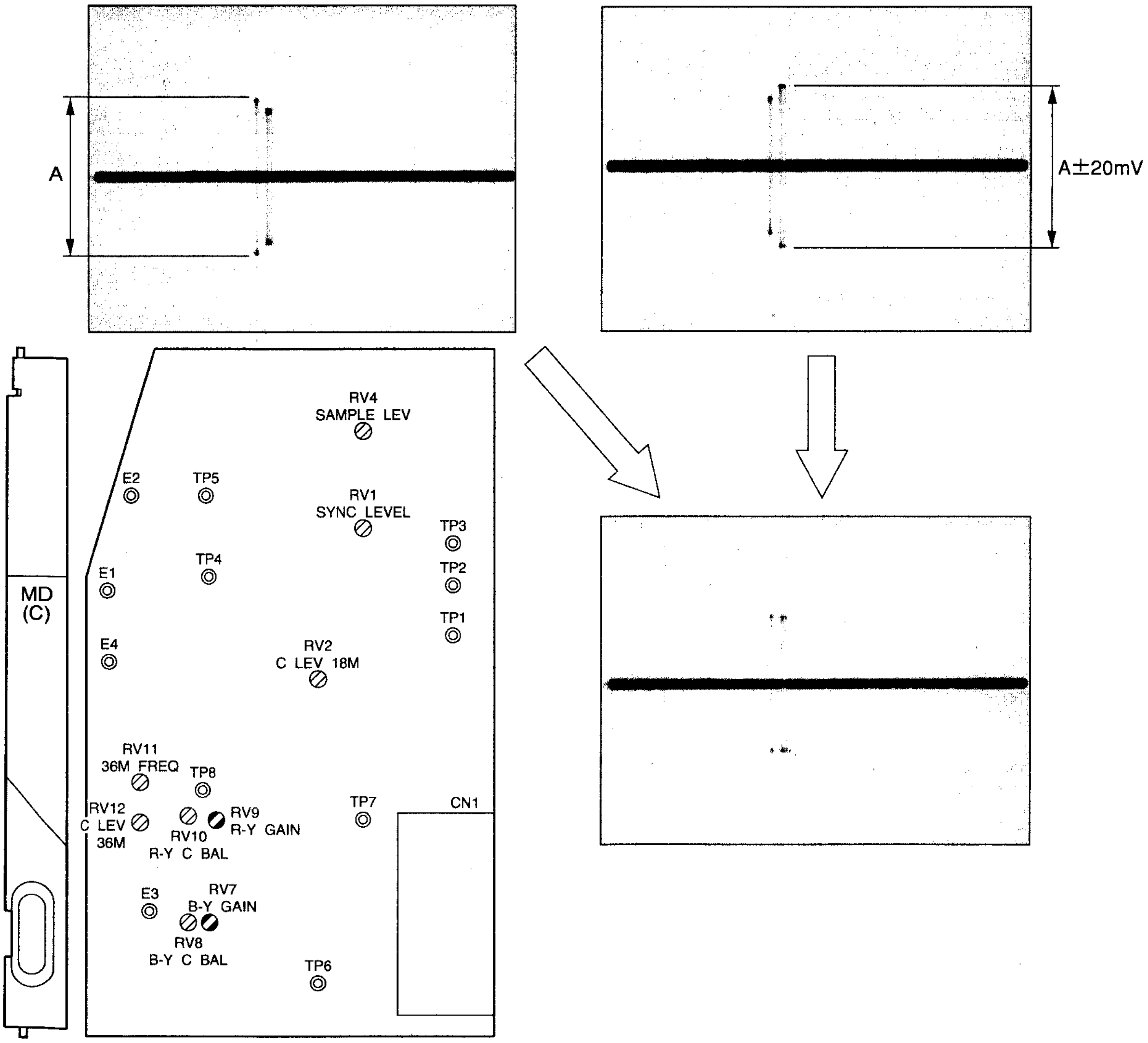
準備

- S1 (R), S2 (G), S3 (B)/MD-54基板→OFF
- CCU-355のDM-67基板を延長します。
  CCU-355とCA-3511を1 m以内のトライアックスケーブルで接続します。

基板延長: MD-55
測定器: オシロスコープ
測定点: TP50 (GND: TP49)/DM-67
調整箇所: ⊘RV9 (R-Y GAIN)
⊘RV7 (B-Y GAIN)

調整手順:

1. ⊘RV9にてSYNCのレベル"A"が1600±40 mVになるように調整します。
2. ⊘RV7にてSAMPLEレベルがA±20 mVになるように調整します。


A
A±20mV
RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP2
TP1
E1
TP4
MD
(C)
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)

ステップ6.　TR-47基板調整

6-1.　搬送周波数調整

準備

- MICスイッチ/サイドパネル→ON

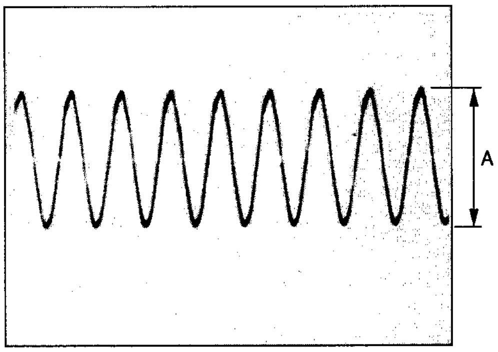
基板延長: TR-47
測定器:　周波数カウンタ

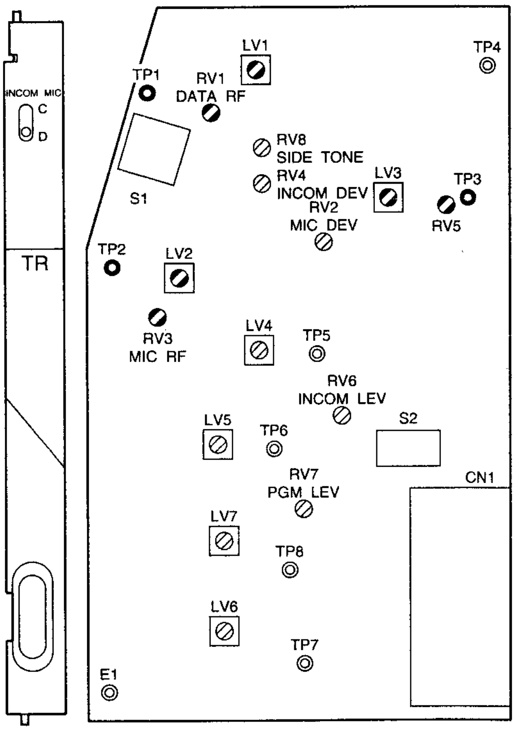
測定点	[illegible] 調整箇所 [illegible]	[illegible] 規格 [illegible]
TP1	⊘LV1 (6.2 M ADJ)	6.2±0.003 MHz
TP2	⊘LV2 (6.8 M ADJ)	6.8±0.003 MHz
TP3	⊘LV3 (5.7 M ADJ)	5.7±0.003 MHz

6-2.　RFレベル調整

基板延長: TR-47
測定器:　オシロスコープ

測定点	[illegible] 調整箇所 [illegible]	[illegible] (A) [illegible]
TP1	⊘RV1 (DATA RF)	250±10 mV
TP2	⊘RV3 (MIC RF)	250±10 mV
TP3	⊘RV5 (INCOM RF)	300±10 mV



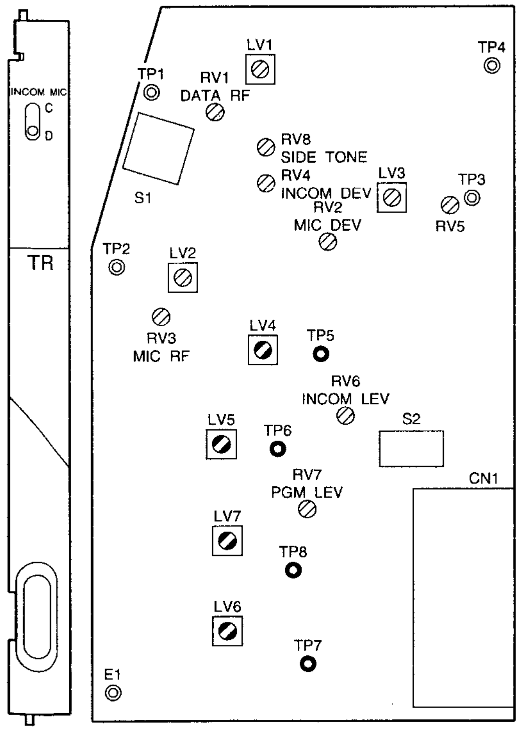

INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
S1
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

6-3. チューニング調整

基板延長: TR-47
測定器: デジボル

測定点	調整箇所	規格
TP5	⊘LV4 (4.5 M TUNE)	4.4±0.1 V
TP6	⊘LV5 (4.9 M TUNE)	4.4±0.1 V
TP7	⊘LV6 (3.6 M TUNE)	5.0±0.1 V


INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
RV8
SIDE TONE
S1
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

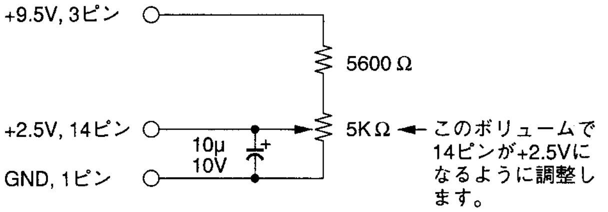
6-4. H CONTレベル調整

注意事項

- このボリュームは調整が困難ですので、LV7をとりかえた時以外は調整を行わないで下さい。
- 調整を行う場合は、完全に調整されたCCU-355と接続して下さい。

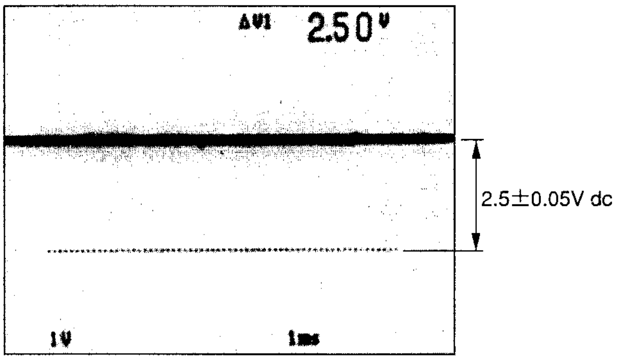
準備

- SG-131/CCU-355を抜く。
- 治具を作り、TR-46/CCU-355の14ピン、GND間に直流電圧2.5 Vを入力する。


+9.5V, 3ピン
5600 Ω
+2.5V, 14ピン
5KΩ
10μ
10V
GND, 1ピン

このボリュームで14ピンが+2.5Vになるように調整します。

基板延長: TR-47
測定器: オシロスコープ
測定点: TP8
調整箇所: ⊘LV7 (3.9 M TUNE)
規格: 2.5±0.05 V dc



6-5. MICレベル調整

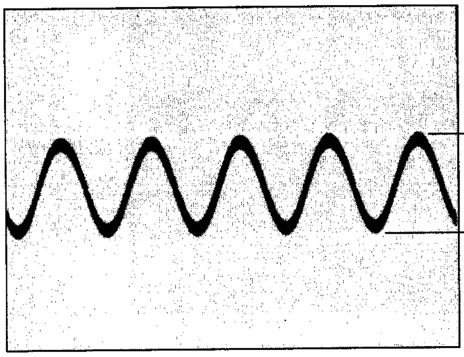
注意事項

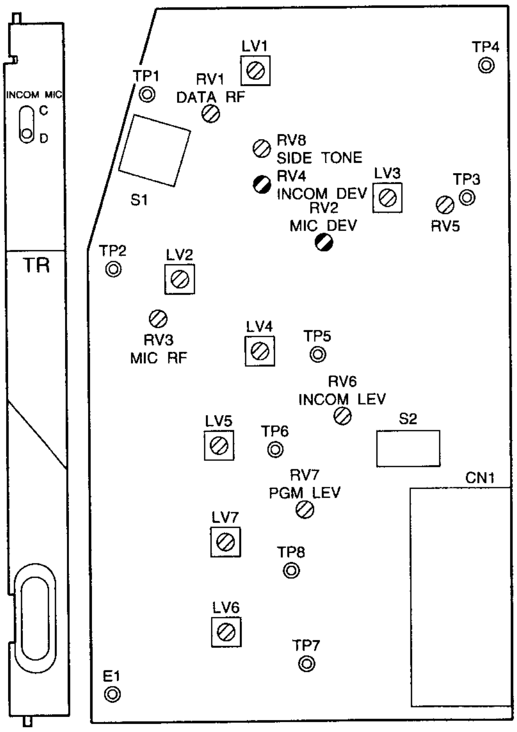
- 調整の済んでいるCCU-355と接続して下さい。

準備

- MICコネクタ→開放
- 低周波発振器より1 kHz, –60 dBsの正弦波を延長基板のB19, B20ピンに入力します。

基板延長: TR-47, TR-46/CCU-355
測定器: 低周波発振器
オシロスコープ
測定点: 33ピン/TR-46 (CCU-355)
調整箇所: ⊘RV2 (MIC DEV)
規格: 110±5 mV




INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
S1
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

6-6. CHU INCOMレベル調整

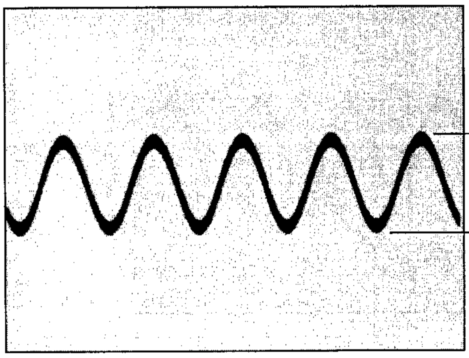
注意事項

- 調整の済んでいるCCU-355と接続して下さい。

準備

- INCOMコネクタ→開放
- 低周波発振器より1 kHz, –20 dBsの正弦波を延長基板のA12, A13ピンに入力します。

基板延長: TR-47, TR-46/CCU-355
測定器: 低周波発振器
オシロスコープ
測定点: 37ピン/TR-46 (CCU-355)
調整箇所: ⊘RV4 (INCOM DEV)
規格: 110±5 mV



6-7. CCU INCOM復調レベル調整

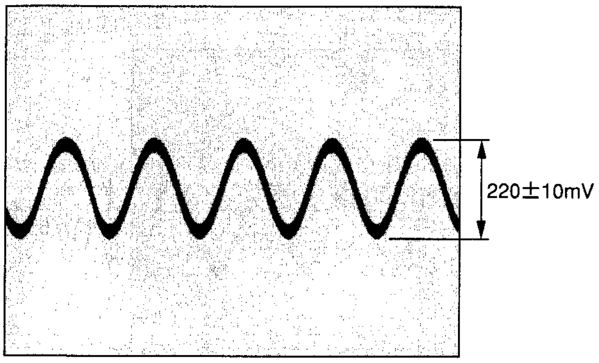
注意事項

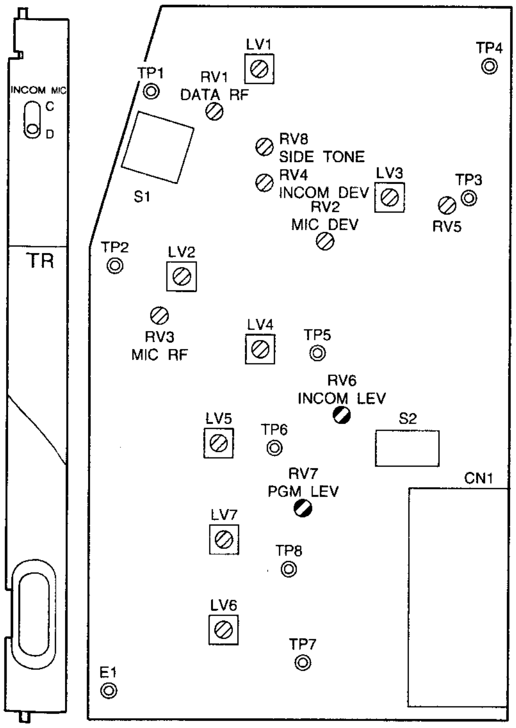
- 調整の済んでいるCCU-355と接続して下さい。

準備

- 低周波発振器より1 kHz, 0 dBsの正弦波をCCU-355リアパネルのINCOMコネクタに入力します。

基板延長: TR-47
測定器: 低周波発振器
オシロスコープ
測定点: B14/延長基板
調整箇所: ⊘RV6 (INCOM LEVEL)
規格: 220±10 mV




INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
S1
RV2
MIC DEV
RV5
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

6-8. PGM復調レベル調整

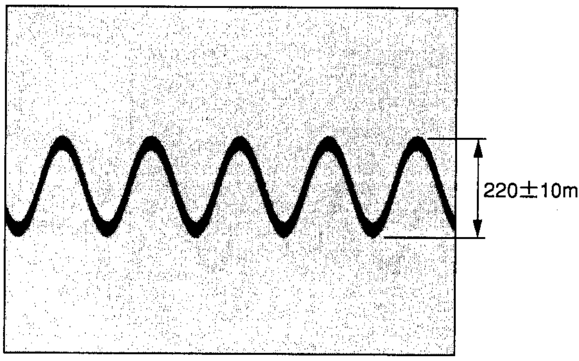
注意事項

- 調整の済んでいるCCU-355と接続して下さい。

準備

- 低周波発振器より1 kHz, 0 dBsの正弦波をCCU-355リアパネルのPGMコネクタに入力します。

基板延長: TR-47
測定器: 低周波発振器
オシロスコープ
測定点: B11/延長基板
調整箇所: ⊘RV7 (PGM LEVEL)
規格: 220±10 mV



ステップ7.　RX-6基板

7-1.　PLL自走周波数調整

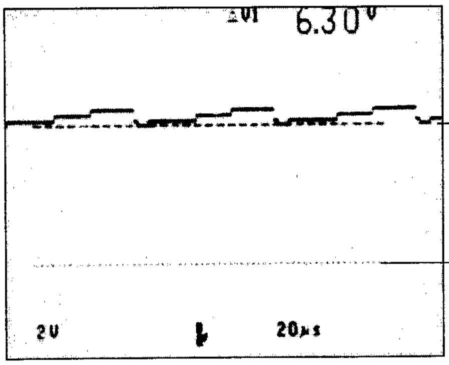
準備

テスト信号発生器とRET1コネクタ/CCU-355リアパネルをBNCケーブルで接続します。

基板延長: RX-6
測定器:　オシロスコープ
　　　　テスト信号発生器
測定点:　TP3
調整箇所: ⊘LV2 (PLL　SET)

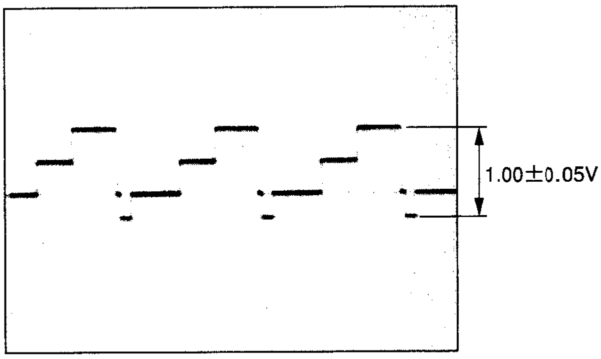
調整手順:

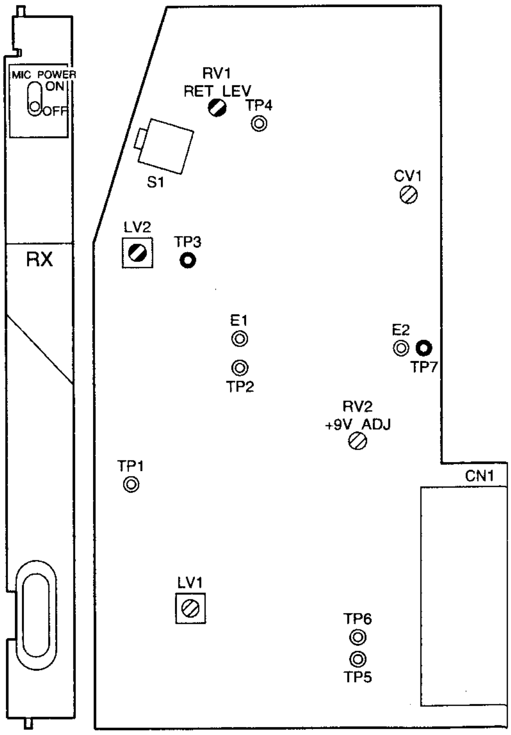
1. テスト信号発生器のモードを次のようにセットします。
   - 3 STEP
   - LINEALITY
   - APL　50 %
   - STD
   - B/W
2. ⊘LV2にて波形のDC電圧が6.3±0.1 V dcになるように調整します。



7-2.　リターンビデオレベル調整

基板延長: RX-6
測定器:　オシロスコープ
　　　　テスト信号発生器
測定点:　TP7
調整箇所: ⊘RV1 (RET　LEVEL)
規格:　1.00±0.05 V

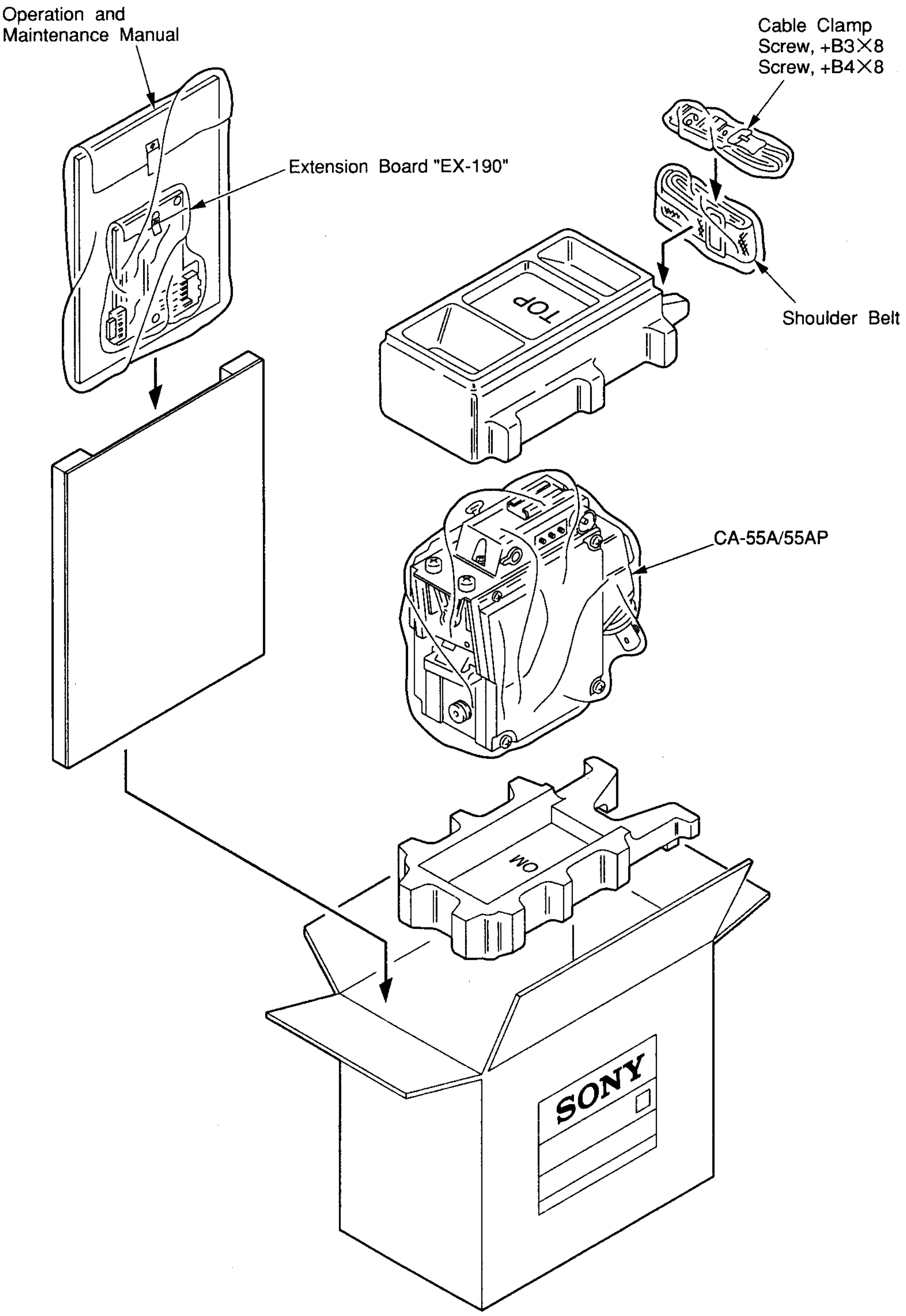



MIC POWER
ON
OFF
RX
RV1
RET LEV
TP4
S1
CV1
LV2
TP3
E1
TP2
E2
TP7
RV2
+9V ADJ
TP1
CN1
LV1
TP6
TP5

RX-6　BOARD　(COMPONENT　SIDE)

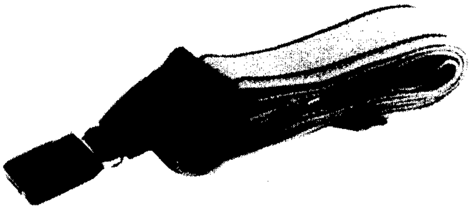
SECTION 2
INSTALLATION

2-1. UNPACKING AND REPACKING

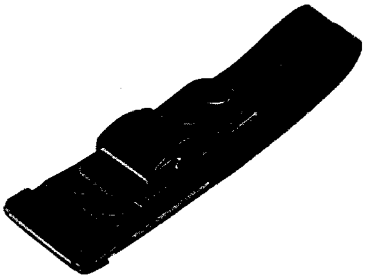

Operation and Maintenance Manual
Cable Clamp
Screw, +B3×8
Screw, +B4×8
Extension Board "EX-190"
TOP
Shoulder Belt
CA-55A/55AP
OM
SONY

2-2. SUPPLIED ACCESSORIES

Shoulder Belt: × 1 (Sany Parts No. A-6772-374-A)
Used for shouldering the Betacam camera with the CA-55A/55AP attached using it.



Cable Clamp: × 1 (Sany Parts No. 3-734-214-01)



Screw, +B 3×8: × 2 (Sany Parts No. 7-682-548-09)
Used for attaching the cable clamp to the CA-55A /55AP.

Screw, +B 4×8: × 2 (Sany Parts No. 7-682-561-09)
Used for attaching the cable clamp to the VCT-13/14 tripod attachment.

Operation and Maintenance Manual: × 1
Instruction and Service manual for CA-55A/55AP.

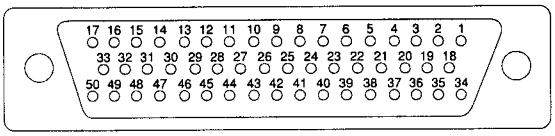
2-3. CONNECTORS/CABLE

2-3-1. Connector Input/Output Signals

The main connector input/output signals are as follows;

GENLOCK IN	BNC type, VBS 1 Vp-p, Zo=75 ohm, Unbalanced
RET OUT	BNC type, VBS 1 Vp-p, Zo=75 ohm, Unbalanced
CCU	Triaxial
PGM/INCOM	Phone Jack
(For EK)	Input impedance 5 k ohm to 10 k ohm Output impedance 300 ohm, unbalanced Input level 200 mV p-p (at 1 kHz) Output level Max 1.7 V p-p (at 1 kHz)

CAMERA (50P, FEMALE)

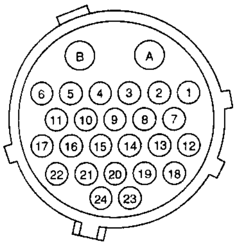

17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18
50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34

(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GEN LOCK OUT (X)	VBS 1 V p-p, Zo = 1 k
2	GEN LOCK OUT (G)	
3	+8.8 V IN	REG (+8.8 V)
4	–5.0 V IN	REG (–5.0 V)
5	UNREG (GND)	GND for UNREG
6	UNREG (GND)	
7	R VIDEO IN (X)	V 0.7 V p-p, Zi = 75 Ω
8	G VIDEO IN (X)	
9	B VIDEO IN (X)	
10	RGB VIDEO IN (G)	GND for R, G, B VIDEO
11	(SPARE)	
12	(SPARE)	
13	(SPARE)	
14	SD IN/OUT	Serial data for camera control
15	MIC IN (G)	Zi ≧ 600 Ω, –60 dBm balanced
16	MIC IN (X)	
17	MIC IN (Y)	
18	RET VIDEO OUT (X)	V 0.7 V p-p, Zo = 1 kΩ
19	RET VIDEO OUT (G)	
20	ZEBRA/AUDIO OUT	AUDIO Zo ≧ 1 kΩ
21	(SPARE)	
22	TAPE IND 2 OUT	ON: +4.5 V, OFF; GND or OPEN
23	TAPE IND 1 OUT	

PIN No.	SIGNAL	SPECIFICATION
24	REC ALARM OUT	ON: +5 V, OFF: +2.5 V or 0 V, Zo ≧ 20 kΩ
25	BATT IND OUT	Zo = 300 Ω
26	PB REF OUT	PB: +4.5 V, CAM: 0 V or OPEN
27	VTR START/STOP IN	Zi ≦ 10 kΩ
28	(SPARE)	
29	R-Y VIDEO IN (X)	Zi = 75 Ω 700 mV p-p (CA-55A) ······ NTSC 525 mV p-p (CA-55AP)···· PAL
30	R-Y VIDEO IN (G)	
31	AUDIO CONT IN	0 V (0 dB)~7 V (−20 dB)
32	VTR SAVE IN	SAVE: +4.5 V, STAND BY: 0 V, Zi ≦ 10 kΩ
33	AUDIO MONITOR OUT	No connection
34	SYNC (VTR) IN	5 V p-p, Negative pulse, Zi ≦ 100 Ω
35	(SPARE)	
36	SHUT CLOSE OUT	No connection
37	CF IN	Color Framing
38	RET VIDEO ENABLE IN	ENABLE: 0 V, DISABLE: +5 V or OPEN
39	UNREG OUT	+10.6 V ~ +17 V
40	UNREG OUT	
41	Y VIDEO IN (X)	VS 1.0 V p-p, Zi = 75 Ω
42	Y VIDEO IN (G)	
43	VBS IN (X)	VBS 1.0 V p-p, Zi = 75 Ω
44	VBS IN (G)	
45	(SPARE)	
46	(SPARE)	
47	(SPARE)	
48	(SPARE)	
49	B-Y VIDEO IN (X)	Zi = 75 Ω 700 mV p-p (CA-55A) ······ NTSC 525 mV p-p (CA-55AP)···· PAL
50	B-Y VIDEO IN (G)	

VTR (26P, MALE)

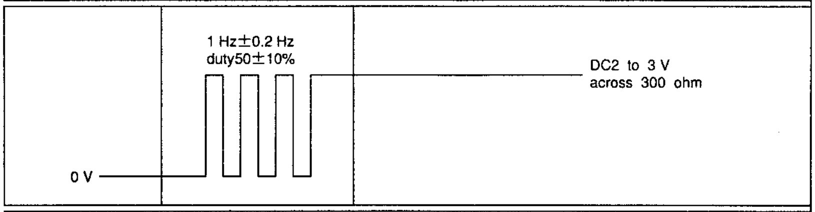


(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
A	POWER (+) IN	UNREG 10.6 V ~ 17 V, 3A
B	POWER (–) IN	
1	VBS OUT (X)	VBS 1.0 V p-p, Zo = 75 Ω
2	VBS OUT (G)	
3	Y VIDEO OUT (G)	VS 1.0 V p-p, Zo = 75 Ω
4	Y VIDEO OUT (X)	
5	R-Y VIDEO OUT (X)	Zo = 75 Ω 700 mV p-p (CA-55A) ······ NTSC 525 mV p-p (CA-55AP)···· PAL
6	R-Y VIDEO OUT (G)	
7	B-Y VIDEO OUT (X)	
8	B-Y VIDEO OUT (G)	
9	MIC OUT (X)	Zo ≦ 600 Ω, –60 dBm balanced
10	MIC OUT (Y)	
11	MIC OUT (G)	
12	VTR START/$\overline{\text{STOP}}$ OUT	START: 5±1 V dc, STOP: $0^{+0.2}_{-0.1}$ V dc, Zo ≦ 10 kΩ
13	BATT IND IN	Note 1), Zi = 300 Ω
14	(SPARE)	
15	REC ALARM IN	Note 2), Zi ≧ 20 kΩ
16	(SPARE)	
17	GND (SHIELD)	Camera GND
18	PB VIDEO IN (X)	VS 1 V p-p, Zi = 75 Ω
19	PB VIDEO IN (G)	
20	AUDIO MONITOR IN/VTR SAVE OUT	SAVE: +4.5±0.5 V STANDBY: $+9.0^{+1}_{-0.5}$ V), Zo ≦ 10 kΩ MONITOR: Zi = 750 Ω
21	(SPARE)	
22	COLOR FRAMING PULSE	Color Framing
23	(SPARE)	
24	(SPARE)	

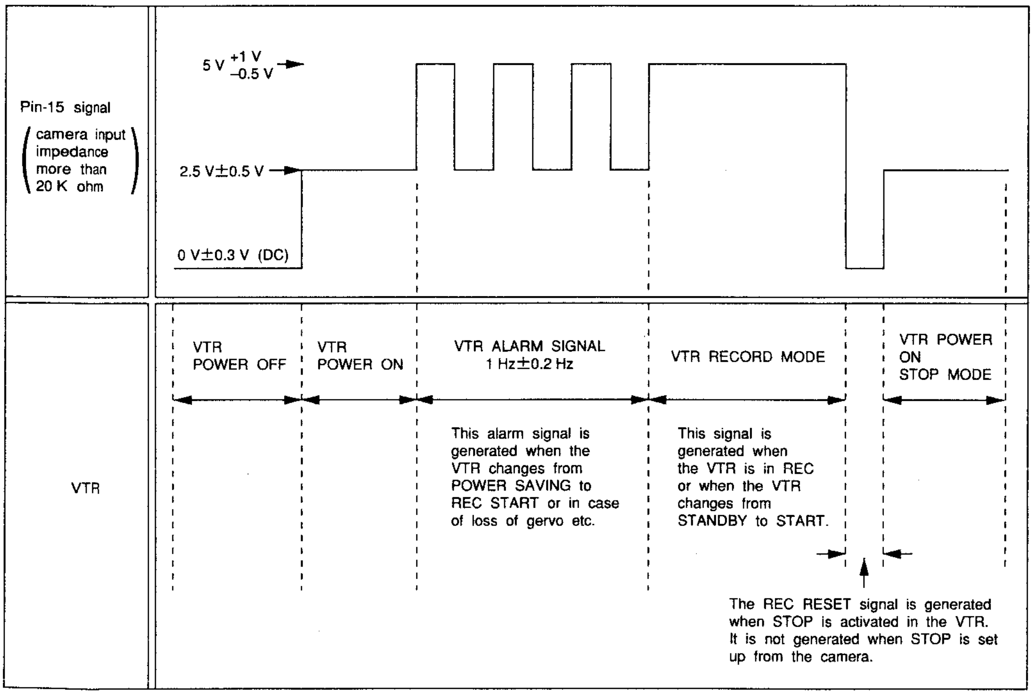
Note 1. Signal at Pin 13

Battery voltage detection and warning signal generating circuits are located within the VTR. This signals are supplied from the VTR to the camera to either blink or light the LED at the bottom of the viewfinder.

BATTERY TERMINAL ADAPTOR (VTR INTERNAL BATTERY)	DC12 V to 11.1 V	DC11.1 V to 10.8 V	PIN 13 TURNS HIGH AT DC 10.8 V, 10.6 V DC or below the VTR Internal Power is cut off so that the Battery Power is sent to Pin 13.
PIN 13 OUTPUT FROM VTR	 0 V 1 Hz±0.2 Hz duty50±10% DC2 to 3 V across 300 ohm		
LED IN VIEWFINDER	NEITHER BLINKS NOR LIGHTS	BLINKS AT 1 Hz	LIGHTS

Note 2. Signal at Pin 15

When the VTR is ON, the input to the camera at pin 15 is 2.5 V DC. In VTR record mode the voltage is 5 V DC . When servo is not applied or if alarm signals are generated within the VTR, an alternating 1 Hz signal (2.5 Vp-p with 2.5 V DC as reference) is sent to the camera. At the tape end when the VTR enters Stop mode or when setting up the Stop mode from the VTR, 0 V DC is generated from 10 msec to 100 msec (called REC RESET). After REC RESET the signal level returns to 2.5 V DC.

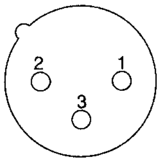

Pin-15 signal
(camera input impedance more than 20 K ohm)
5 V +1 V −0.5 V
2.5 V±0.5 V
0 V±0.3 V (DC)
VTR
VTR POWER OFF
VTR POWER ON
VTR ALARM SIGNAL 1 Hz±0.2 Hz
VTR RECORD MODE
VTR POWER ON STOP MODE

This alarm signal is generated when the VTR changes from POWER SAVING to REC START or in case of loss of gervo etc.

This signal is generated when the VTR is in REC or when the VTR changes from STANDBY to START.

The REC RESET signal is generated when STOP is activated in the VTR. It is not generated when STOP is set up from the camera.

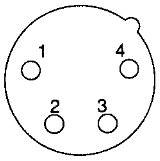
MIC IN (3P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	MIC IN (G)	600 Ω, –60 dBm
2	MIC IN (X)	
3	MIC IN (Y)	

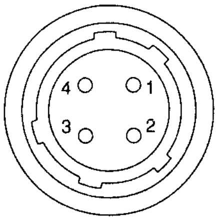
DC IN (4P, MALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	DC 10.5 ~ 17.0 V

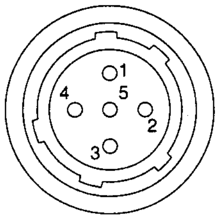
DC OUT (10.5 V-17 V) (4P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) OUT	DC 10.5 ~ 17.0 V

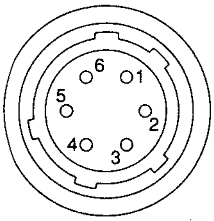
DC OUT (120 V) (5P, FEMALE)



(EXT VIEW)

PIN No.	SIGNAL	SPECIFICATION
1	(SPARE)	
2	120 V OUT (C)	GND
3		
4		
5	120 V OUT (H)	DC 120 V

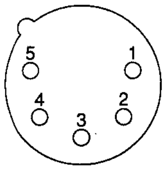
RET CONT (6P, FEMALE)



(EXT VIEW)

[illegible]	[illegible]	[illegible]
1	INCOM MIC ON/ OFF IN (X)	ON: 0 V, Zi≦10 kΩ
2	(SPARE)	
3	GND	
4	(SPARE)	
5	RET 1 CONT IN	ON: 0 V, Zi≦10 kΩ
6	RET 2 CONT IN	ON: 0 V, Zi≦10 kΩ

INCOM/PGM (5P, FEMALE) (only UC)



(EXT VIEW)

[illegible]	[illegible]	[illegible]
1	INCOM TALK IN (X)	0 dBm, 600 Ω Unbalanced
2	INCOM TALK IN (Y)	
3	GND	GND for INCOM/PGM
4	INCOM RECEIVE OUT (X)	0 dBm, 600 Ω
5	PGM OUT (X)	0 dBm, Unbalanced

2-3-2. Connector

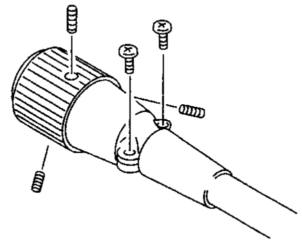
Connection made with the connector panels during installation or service, should be made with the connectors/complete cable assemblies specified in the following list, or equipment parts;

Connector Function	Parts No. and Name of Connector with Cable	
RET OUT GENLOCK IN (BNC)	1-560-069-11 PLUG, BNC or B-B cable assembly (Cable length 1.5 m, optional)	
CCU (TRIAX)	CCT Cable assembly (Optional, by FISCHER) CCT-50 (50 m/164 feet) CCT-100 (100 m/328 feet) CCT-150 (150 m/429 feet) CCT-300 (300 m/984 feet)	CCT (K) Cable assembly (Optional, by KINGS) CCK-50 (50 m/164 feet) CCK-100 (100 m/328 feet) CCK-150 (150 m/429 feet) CCK-300 (300 m/984 feet)
VTR (26P, MALE)	1-564-184-00 CONNECTOR, 26PIN, FEMALE or cable assembly (optional) • For 26PIN-VTR use CCZ-2 (2 m) CCZ-10 (10 m) • For 14PIN-VTR use CCZQ-2 (2 m) CCZQ-10 (10 m)	
MIC IN (For J model) (3P, MALE)	1-508-083-00 XLR-3P, FEMALE CANNON XLR-3-11C or equivalent	
MIC IN (For UC/EK model) (3P, FEMALE)	1-508-084-00 XLR-3P, MALE CANNON XLR-3-12C or equivalent	
DC IN (4P, MALE)	1-508-326-00 XLR-4-11C, FEMALE or cable assembly (Supplied with AC-500/550) 1-551-577-00 Cable with XLR plugs (Cable length 2 m)	
DC OUT (10.5 V-17 V) (4P, FEMALE)	1-566-425-11 PLUG, 4P, MALE HIROSE HR-10A-7P-4PB or equivalent	
DC OUT (120 V) (5P, FEMALE)	1-565-799-11 PLUG, 5P, MALE HIROSE HR-10A-7P-5P or equivalent	
RET CONT (6P, FEMALE)	1-566-365-11 PLUG, 6P, MALE HIROSE HR-10A-7P-6P or equivalent	
INCOM/PGM (For UC model) (5P, FEMALE)	9-910-999-31 XLR-5-12C, MALE	

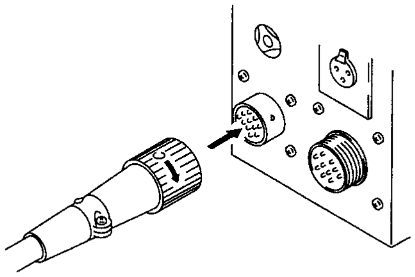
2-3-3. Removal of the CCZ, CCZQ connectors

CCZ, CCZQ Connectors (Removal of the connector)

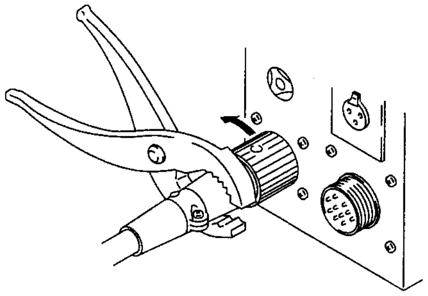
Step 1.
Remove the three hexagonal setscrews and the two setscrews.



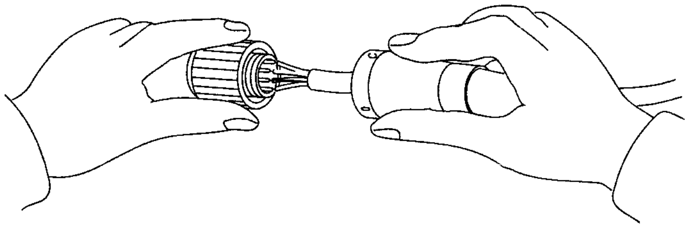
Step 2.
Fix the CCZ connector at the camera or VTR connector.



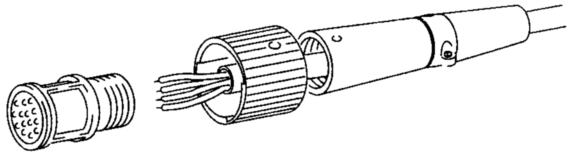
Step 3.
Rotate the CCZ connector counterclockwise by the plier and loosen it.



Step 4.
It can be removed by hand and unsolder.

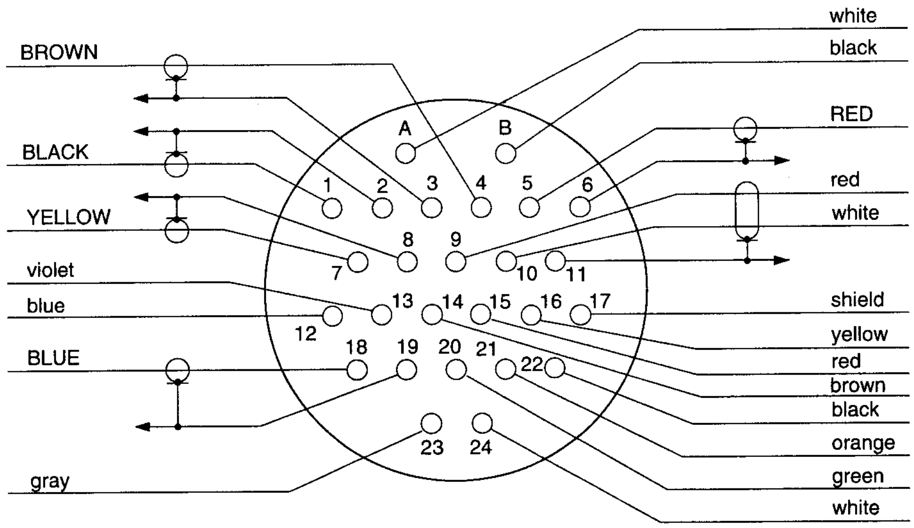


Step 5.
It can be broken up as shown in Figure.

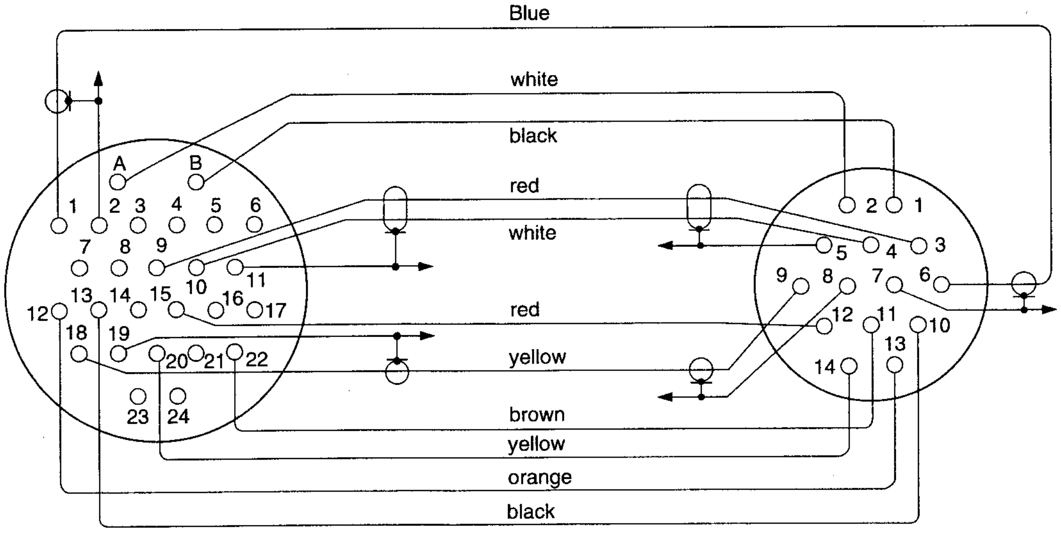


CCZ cable (wiring diagram)

26P CONNECTOR (FEMALE / MALE)
(WIRING SIDE)


BROWN
BLACK
YELLOW
violet
blue
BLUE
gray
white
black
RED
red
white
shield
yellow
red
brown
black
orange
green
white
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

CCZQ cable (wiring diagram)

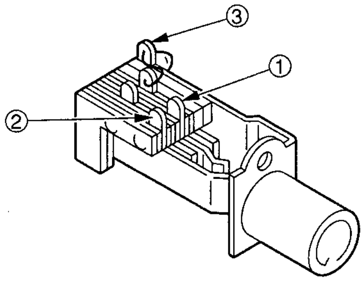

Blue
white
black
red
white
red
yellow
brown
yellow
orange
black
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
2
1
5
4
3
9
8
7
6
12
11
10
13
14

26P CONNECTOR (FEMALE)
(WIRING SIDE)

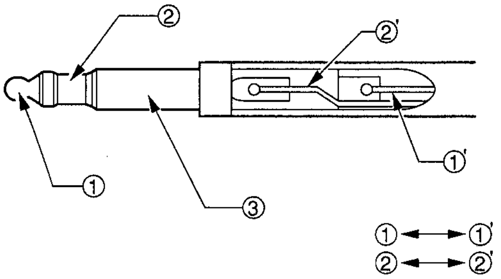
14P CONNECTOR (MALE)
(WIRING SIDE)

2-3-4. Connection of INCOM/PGM terminal (only EK)

INCOM/PGM Jack (wiring diagram)



INCOM/PGM Plug (wiring diagram)



Pin No.	Signal
①	INCOM TALK IN (X)
②	INCOM RECEIVE OUT (X)
	PGM IN (X)
③	INCOM TALK IN (G) INCOM RECEIVE OUT (G)
	PGM IN (G)

2-4. POWER SUPPLY

Power sources DC +12 V (DC +10.5 V to +17 V)

1. DC voltage is supplied from the camera control unit CCU-355/355P via.
   CCU terminal by using triaxial cable.
2. DC voltage is supplied from the AC adaptor AC-500/550 via VTR terminal by using CCZ/CCZQ cable.
3. DC voltage is supplied from the AC adaptor AC-500/550 or DC battery DC-300/310 via DC IN terminal.

2-5. OPERATIONAL ACCESSORIES

Camera cable CCZ-2 (2 m)
CCZ-10 (10 m)

Used for connecting the CA-55A/55AP and BVV-1/1PS /1A/1APS/ 5/5PS or BVW-25/35/50 VTR.

Camera cable CCZQ-2 (2 m)
CCZQ-10 (10 m)

Used for connecting the CA-55A/55AP and portable VTR (BVU-110/110PS/150/150PS, BVH-500, etc.)

Camera cable Triaxial cable assembly
CCT-50 (50 m), CCT-K50 (50 m)
CCT-100 (100 m), CCT-K100 (100 m)
CCT-150 (150 m), CCT-K150 (150 m)
CCT-300 (300 m), CCT-K300 (300 m)

Used for connecting the CA-55A/55AP and CCU-355 /355P.

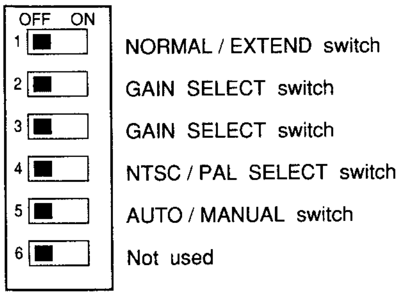
Color video camera BETACAM CCD camera seriese
BVP-90/90P, BVP-50/50P, BVP-7A/7AP
BVP-70IS/70ISP, BVP-T7A/T70/T7AP/T70P

Camera Control Unit CCU-355/355P
Battery Case DC-300 (For battery BP-90A)
Battery Case DC-210 (For battery BP-90A)
Battery Case DC-310 (For battery NP-1A)
Battery NP-1A/1B
Battery BP-90A

2-6. SWITCHES AND CONTROLS SETTING ON THE BOARD

IF-423 board

S1 Switch


OFF ON
1
2
3
4
5
6
NORMAL / EXTEND switch
GAIN SELECT switch
GAIN SELECT switch
NTSC / PAL SELECT switch
AUTO / MANUAL switch
Not used

S1-1 NORMAL/EXTEND switch

Set according to a PR board incorporated in the camera.

ON (EXTEND) : PR board providing GAMMA control-function.
OFF (NORNAL): PR board not providing GAMMA control function.
Factory-setting is "ON".

S1-2 GAIN SELECT switch
S1-3 GAIN SELECT switch

Used to match the gain of camera with "MASTER GAIN" of the camera control unit CCU-355/355P.
Factory-set at 0/9/18 dB.

S1-2	S1-3	MASTER GAIN
OFF	OFF	0/6/12 dB
ON	OFF	0/9/18 dB
OFF	ON	0/9/24 dB
ON	ON	RM-3601

Note: Switches S1-1, S1-2 and S1-3 function only when the CA-55A/55AP is used together with other camera than the BVP-90/90P.

S1-4 NTSC/PAL SELECT switch

Selects either NTSC or PAL.
Turn OFF for NTSC, and ON for PAL.

S1-5 AUTO/MANUAL switch

Turn off to allow the automatic detection of camera type (BVP-90/90P or other).

OFF: Automatic detection mode (factory preset)
ON: S3 switch designates the type of video camera.

S1-6 switch

Not used

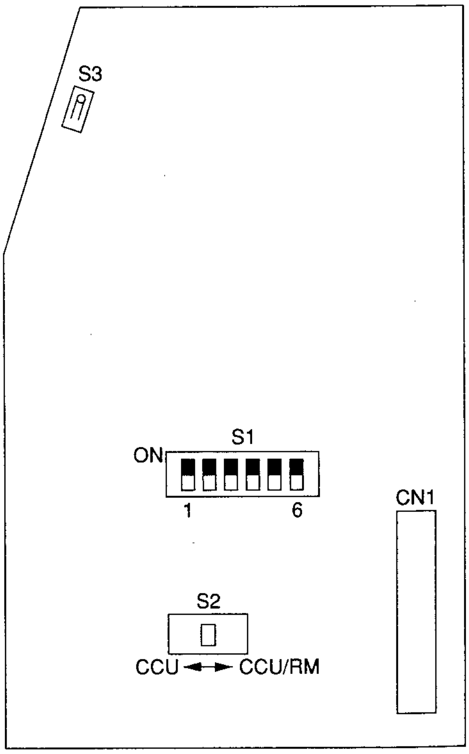
S2 CCU/RM/CCU SELECT switch

CCU : Data from the CCU-355/355P only can be received.
CCU/RM: Data from the RM-3601 is received taking priority of the CCU-355/355P.

S3

This designates the type of video camera when S1-5 switch is set to "ON".

CAM A: BVP-90/90P
(Factory preset)
CAM B: Other


S3
ON
S1
1
6
CN1
S2
CCU
CCU/RM

IF-423 BOARD (COMPONENT SIDE)

TR-47 board

S1: MIC SELECT Switch

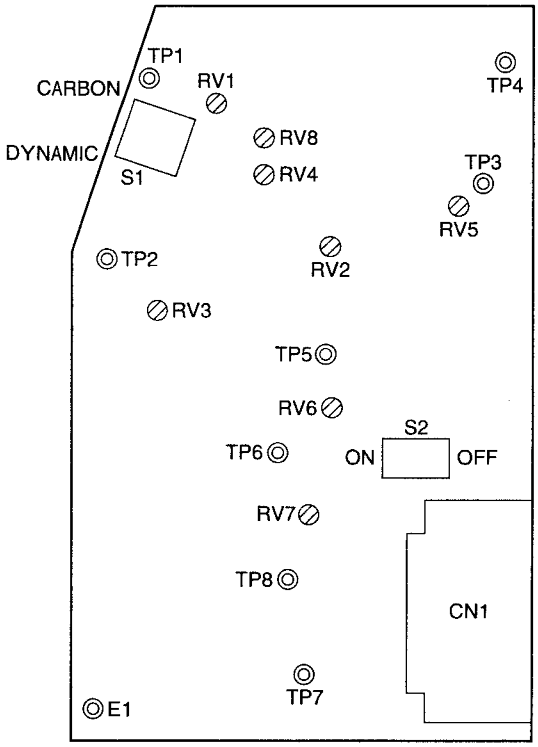
This is the switch for selecting the input impedance and gain of the intercom amplifier.
Both carbon-type and dynamic-type microphones can be used for intercommunication.
Normally set to "CARBON".

S2: PGM/INCOM MIX ON/OFF Switch

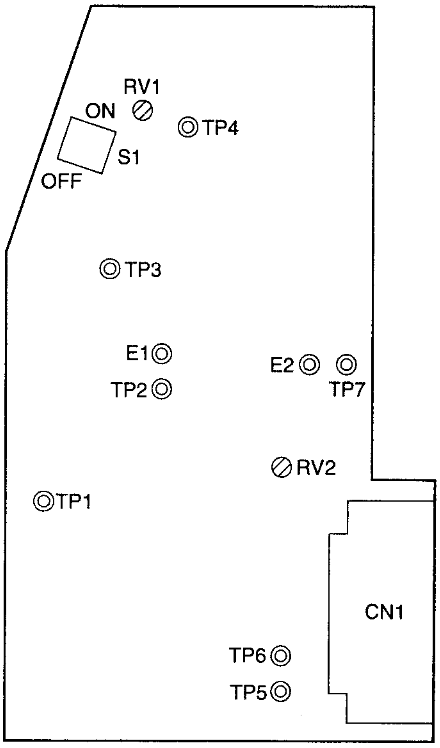
RX-6 board

S1: MIC POWER ON/OFF Switch

When turning on the S1 switch, the dc voltage (+48 V) is supplied from the MIC IN connector.
Normally set to "OFF".


TP1
CARBON
RV1
TP4
DYNAMIC
S1
RV8
RV4
TP3
RV5
TP2
RV2
RV3
TP5
RV6
S2
TP6
ON
OFF
RV7
TP8
CN1
TP7
E1

TR-47 BOARD (COMPONENT SIDE)


RV1
ON
TP4
S1
OFF
TP3
E1
E2
TP2
TP7
RV2
TP1
CN1
TP6
TP5

RX-6 BOARD (COMPONENT SIDE)

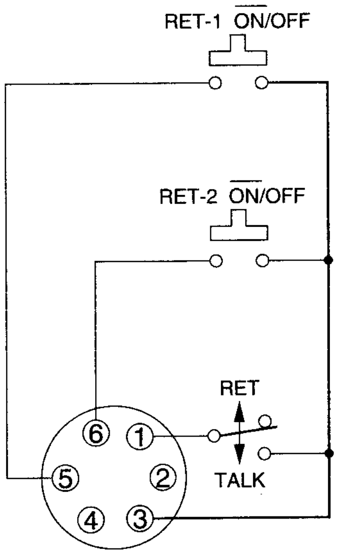
VA-80 board

S1: TALK/RET SELECT Switch

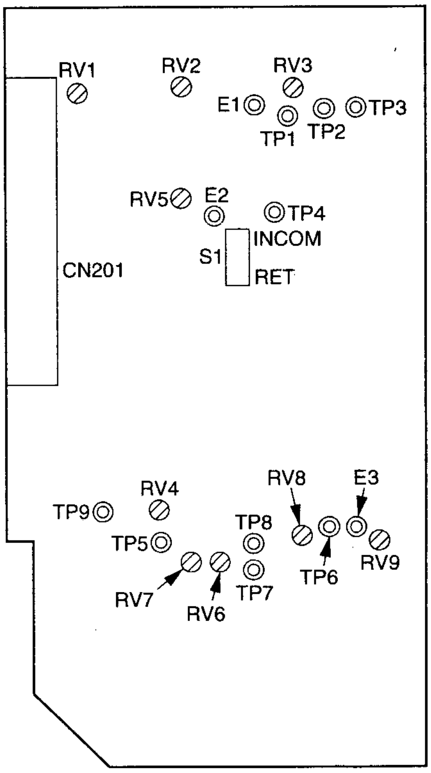
When the return video 2 signal is switched on and off with the VTR START/STOP button located on the camera or on the lens, set to "RET".
When the cameraman's voice is transmitted to the CCU, set to "TALK".

TALK SWITCH	S1	FUNCTION
ON	TALK	The cameraman's voice is transmitted to the CCU.
	RET	
REMOTE	TALK	Transmission of the cameraman's voice to the CCU is controlled by the VTR START/STOP button located on the camera or on the lens.
	RET	The return video 2 signal is switched on and off with the VTR START/STOP button located on the camera or on the lens. But, the cameraman's voice is not transmitted.

This switch is factory-set to the "TALK position".
When connecting the circuit diagram as shown below to the RET CONT connector located on the CA-55A/55AP, the return video 2 signal can be switched on and off and the intercom microphone can be turned on/off.


RET-1 $\overline{\text{ON}}$/OFF
RET-2 $\overline{\text{ON}}$/OFF
RET
TALK
⑥
①
⑤
②
④
③

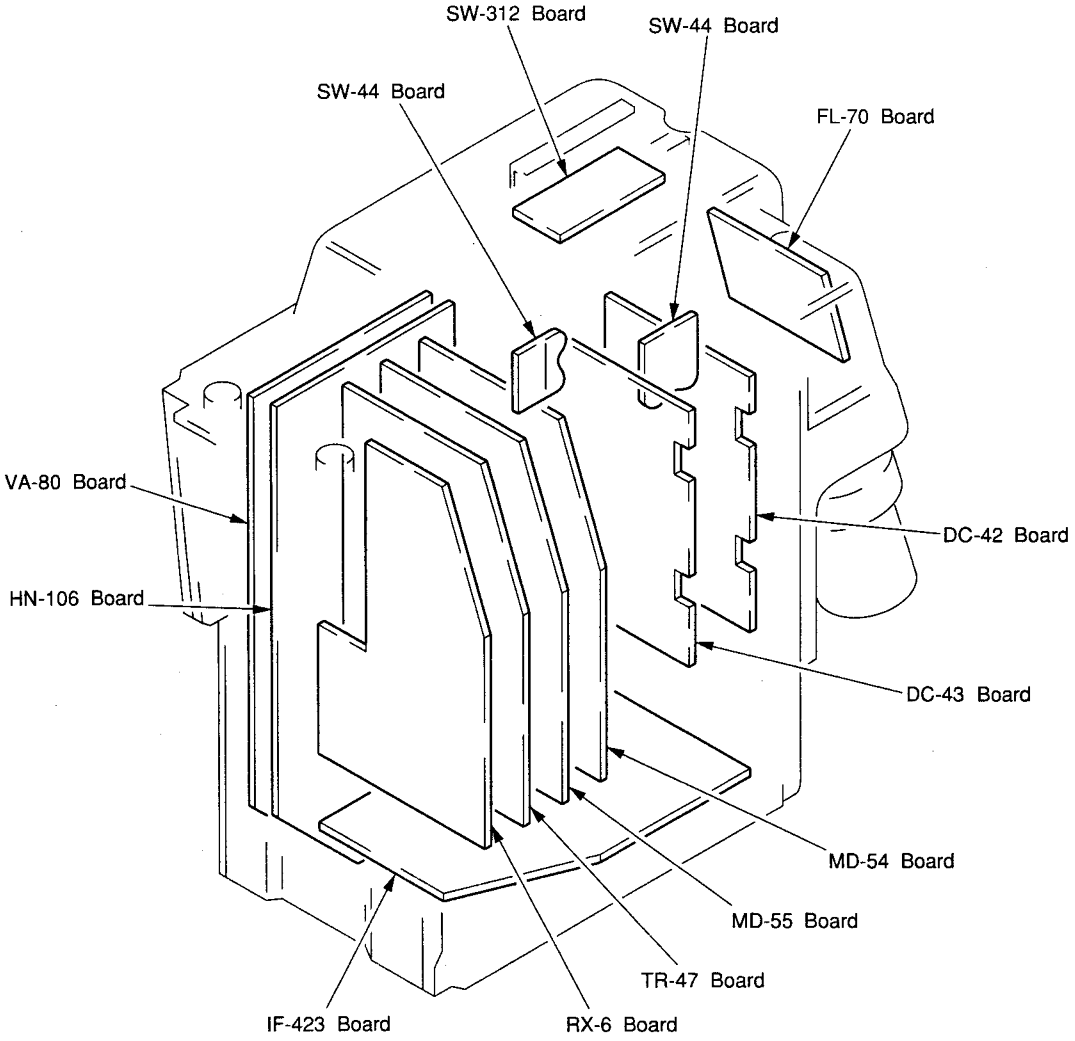
(WIRING SIDE)


RV1
RV2
RV3
E1
TP1
TP2
TP3
RV5
E2
TP4
S1
INCOM
RET
CN201
RV4
RV8
E3
TP9
TP8
TP5
RV9
TP6
RV7
TP7
RV6

VA-80 BOARD (COMPONENT SIDE)

SECTION 3
SERVICE INFORMATION

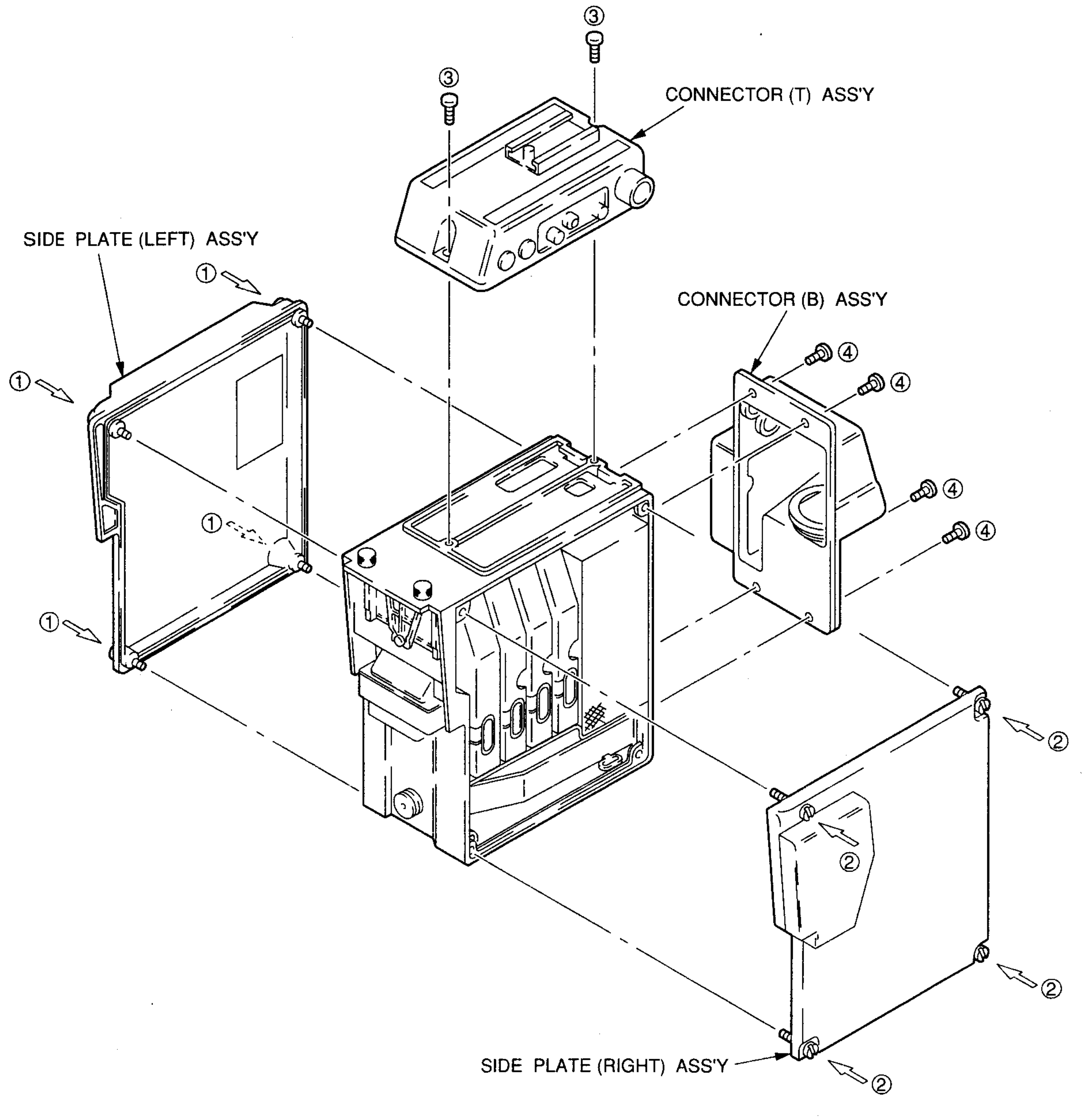
3-1. BOARD LAYOUT


SW-312 Board
SW-44 Board
SW-44 Board
FL-70 Board
VA-80 Board
HN-106 Board
DC-42 Board
DC-43 Board
MD-54 Board
MD-55 Board
TR-47 Board
IF-423 Board
RX-6 Board

3-2. REPLACEMENT OF MAIN PARTS

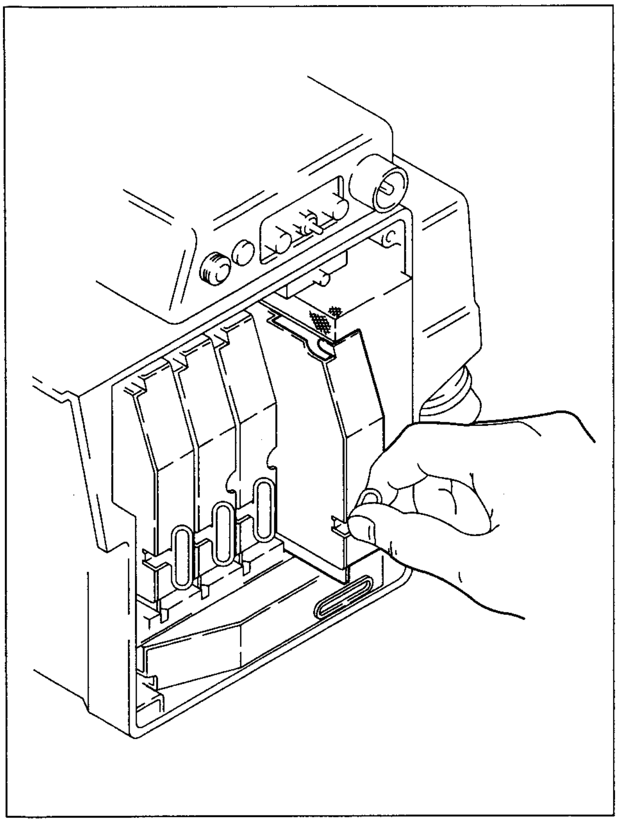
3-2-1. Removal of Cabinet

1. Loosen the four lid screws ① (M 4×18) fixing the SIDE PLATE (LEFT) Ass'y and remove it.
2. Loosen the four lid screws ② (M 4×18) fixing the SIDE PLATE (RIGHT) Ass'y and remove it.
3. Remove the two screws ③ (+B 5×8) fixing the CONNECTOR (T) Ass'y and remove it.
4. Remove the two screws ④ (+B 4×8) fixing the CONEECTOR (B) Ass'y and remove it.


③
③
CONNECTOR (T) ASS'Y
SIDE PLATE (LEFT) ASS'Y
①
①
①
①
CONNECTOR (B) ASS'Y
④
④
④
④
②
②
②
②
SIDE PLATE (RIGHT) ASS'Y

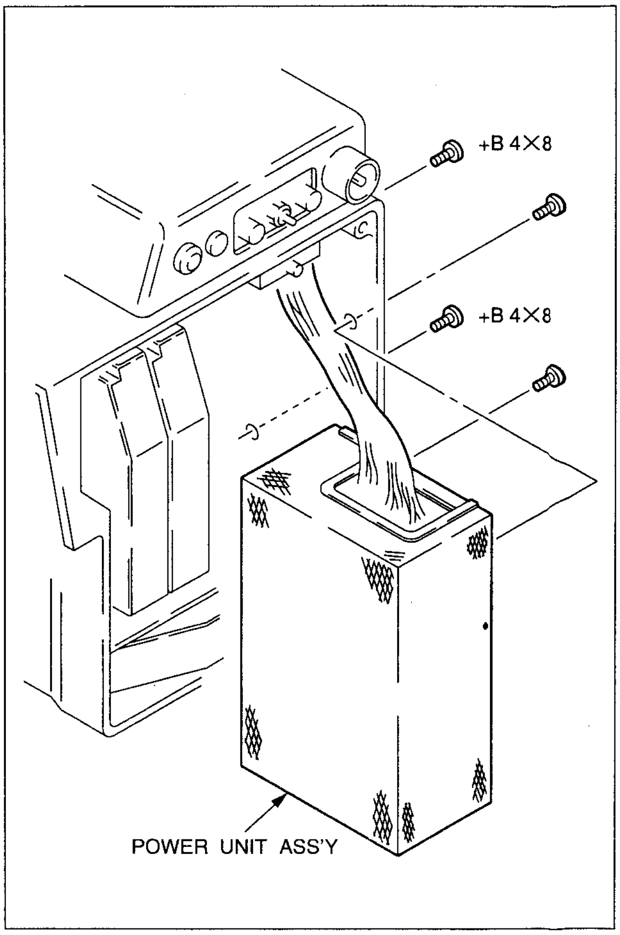
3-2-2. To Extract Board

Pull the pull lever attached to each board toward you.

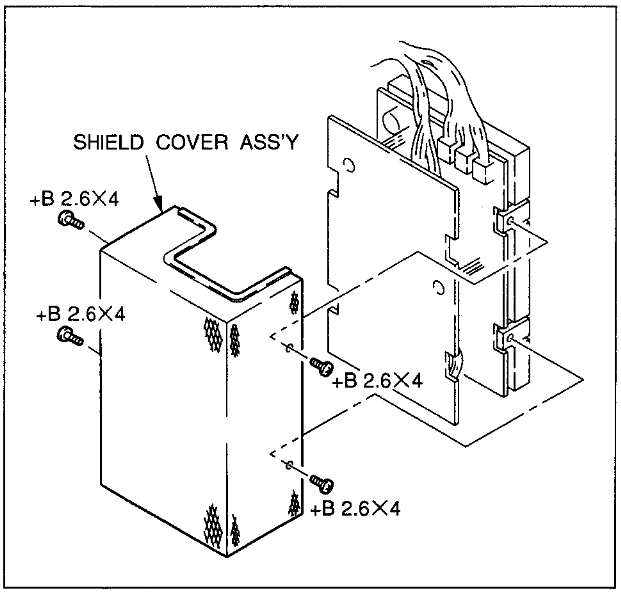


3-2-3. Replacement of DC-42 and DC-43 Boards

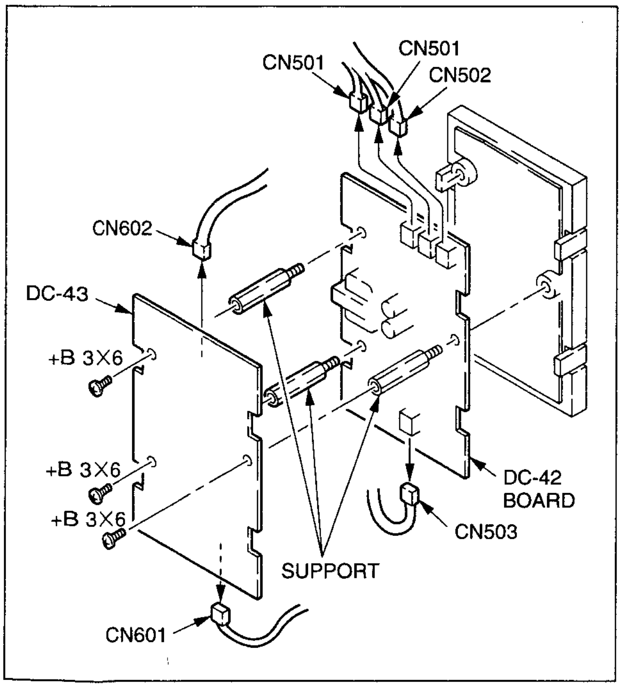
1. Remove the SIDE PLATE (RIGHT) Ass'y and CONNECTOR (B) Ass'y, referring to 3-2-1. "Removal of Cabinet".
2. Remove the MD Board, referring to 3-2-2. "To Extract Board"
3. Remove the four screws (+B 4×8), and remove the POWER UNIT Ass'y.



4. Remove the four screws (+B 2.6×4) shown in figure and remove the SHIELD COVER Ass'y.


SHIELD COVER ASS'Y
+B 2.6X4
+B 2.6X4
+B 2.6X4
+B 2.6X4

5. Remove the three screws (+B 3×6) and disconnect the two connectors CN601, CN-602 on the DC-43 board. Remove the DC-43 board.
Remove the three Supports and disconnect the four connectors CN-501, CN-502, CN-503 and CN-504 on the DC-42 board.
Remove the DC-42 board.


CN501
CN501
CN502
CN602
DC-43
+B 3X6
+B 3X6
+B 3X6
DC-42 BOARD
CN503
SUPPORT
CN601

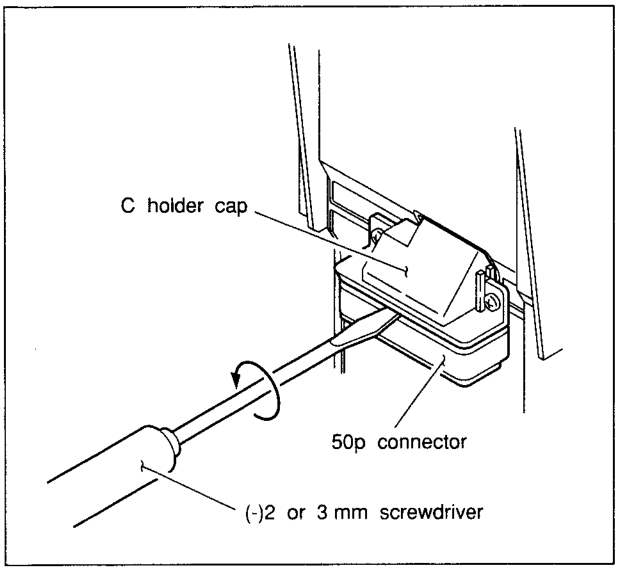
6. Install new DC-42/43 Boards by reversing procedures above.

3-3. SERVICING PRECAUTION

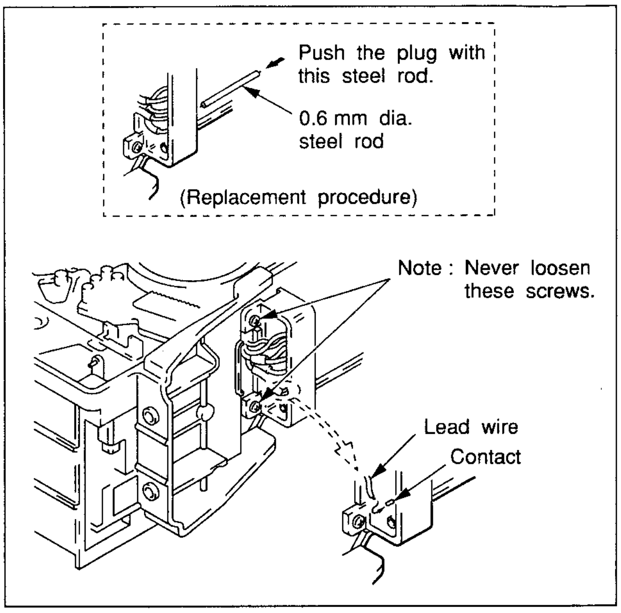
3-3-1. Precautions on Replacement of CAMERA Connector (50P connector)

The CAMERA connector (50 pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with camera mount (C shoe) and to dock with any of Betacam camera series. Avoid to loosen or remove the screws for 50P connector, C shoe, and stopper. Therefore, the V connector holder and 50-pin camera connector should not be removed except when especially specified.

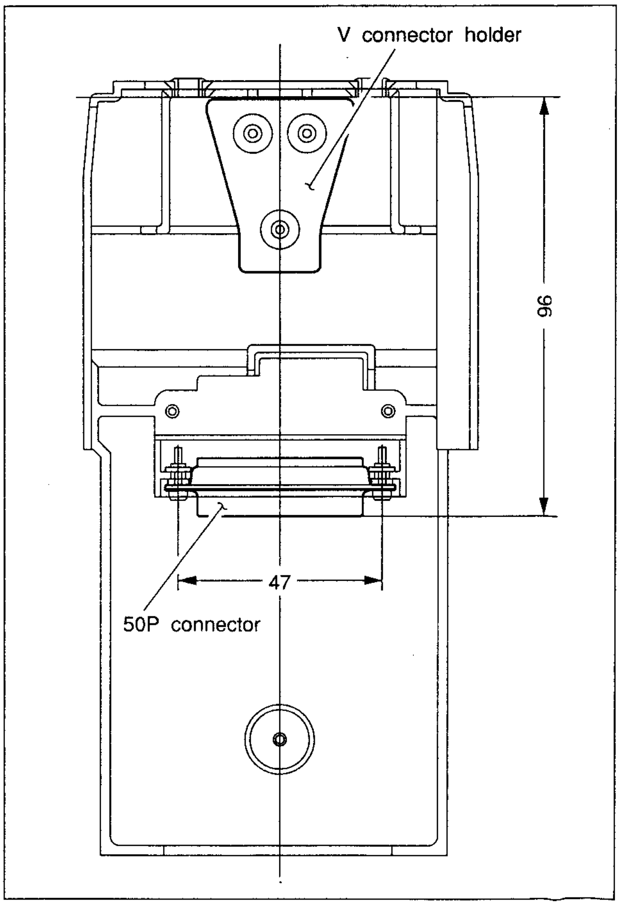
- For check of the 50-pin connector block, remove the C holder cap as shown in the figure below.


C holder cap
50p connector
(-)2 or 3 mm screwdriver

- When a lead wire in the 50-pin connector block is being cut off at the connector block, solder the lead wire onto a contact.
- For defective contact connection, remove the contact for replacement, as shown in the figure below.


Push the plug with this steel rod.
0.6 mm dia. steel rod
(Replacement procedure)
Note : Never loosen these screws.
Lead wire
Contact

- When the 50-pin connector and V connector holder are removed, be sure to attach them to the position to meet the dimensions described below, by using a scale. Connect with your camera after attached, and then confirm that the connection is securely performed.


V connector holder
96
47
50P connector

3-3-2. PROM IC

IC17 on the IF-423 board is PROM IC.
This PROM IC has a suffix to its original designation as follows.

IC17	TMS27C512-CA-5XA-1.00

Never use an IC having no suffix to its original designation. (Its memory has not been programmed.)

3-3-3. Precaution on Replacement Parts

1. **Safety Related on Components Warning**
   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.
2. **Standardization of Parts**
   Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accommodating the improved parts and/or engineering change" or "standardization of genuine parts." This manual's exploded view and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".
3. **Stocked of Parts**
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts, marked with "O" will be processed, but allow for additional delivery time.
4. **Units of Capacitors, Inductors, and Resistors**
   The following units are omitted in the schematic diagrams, exploded views, and electrical parts list unless otherwise specified;

   Capacitor: μF
   Inductor : μH
   Resistor : Ω

3-3-4. Note on Replacement IF Board

A replacement IF-423 board supplied from Sony Parts Center (Sony Parts No. A-8271-834-A) has been set for NTSC model. When using it for CA-55AP, be sure to set the switch S1-4 of IF-423 board to "ON" (PAL) position.

3-4. TOOLS AND JIGS

Parts No.	Description
A-7513-880-A	Extension board "EX-190" (supplied accessory)

SECTION 4
ALIGNMENT

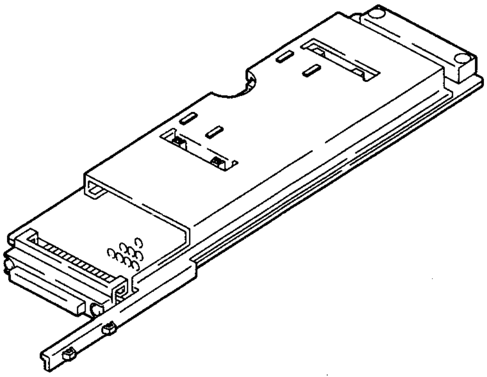
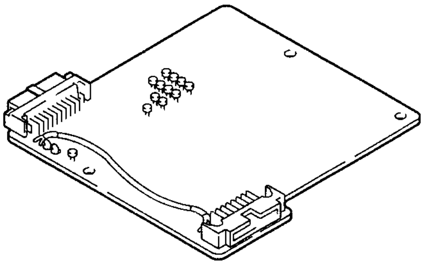
4-1. PREPARATION

4-1-1. Equipment required

- Measuring instruments
  - Digital voltmeter
  - Frequency counter
  - Oscilloscope of more than 33 MHz
  - Low frequency oscillator

- Peripheral equipments
  - Color video camera BVP-90/90P/70/70P/7/7P
  - Camera control unit CCU-355/P
  - Camera adaptor CMA-8/CMA-8CE
  - Triaxial cable CCT/CCT-K cable

- Jigs

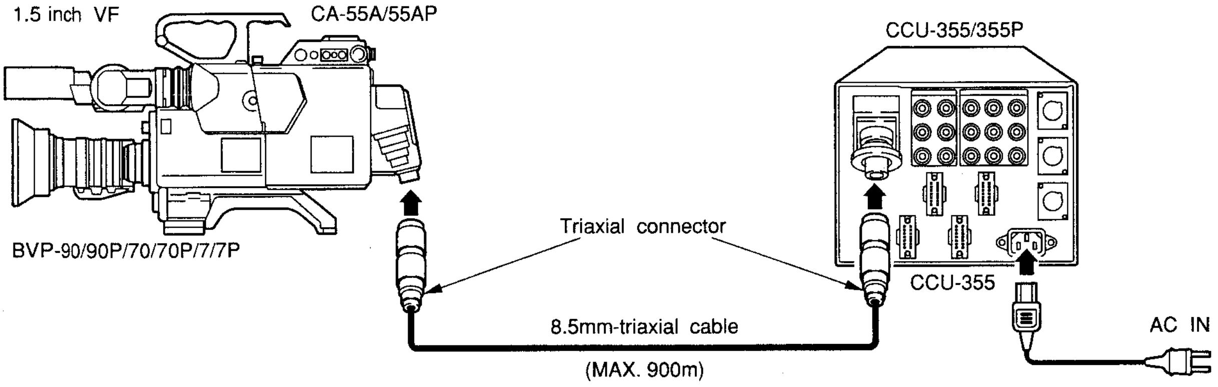
A-7513-864-A	Extension Board EX-189
Supplied accessory for CCU-335/335P 	
A-7513-880-A	**Extension Board EX-190**
Supplied accessory for CA-55A/55AP 	

4-1-2. Notes on Adjustments

- When a board is extracted, set POWER switch to OFF.

- Before beginning adjustment, warm up for 10 minutes.

4-1-3. Connection


1.5 inch VF
CA-55A/55AP
CCU-355/355P
Triaxial connector
BVP-90/90P/70/70P/7/7P
CCU-355
8.5mm-triaxial cable
(MAX. 900m)
AC IN

4-1-4. Initial Settings

- CA-55A/55AP
  POWER switch' CCU ON
  S1 (R)/MD-54 board' ON
  S2 (G)/MD-54 board' ON
  S3 (B)/MD-54 board' ON

- BVP-90/90P/70/70P/7/7P
  CAMERA/VTR switch' ON/STBY

- CCU-355/355P
  MAIN POWER switch' ON
  CAMERA POWER switch' ON
  S1 (TRIAX TEST)/AT-26 board' ON
  OUTPUT selector' CAM

4-2. ALIGNMENT PROCEDURE

Step 1. Power Supply System Adjustment

1-1. +9.5 V Adjustment
1-2. +9 V Adjustment

Step 2. IF-423 Board Adjustment

2-1. H BLKG PHASE Adjustment
2-2. H BLKG WIDTH Adjustment
2-3. V BLKG WIDTH Adjustment

Step 3. VA-80 Board Adjustment

Preparation
3-1. SAMPLE Pulse (1) Adjustment
3-2. SAMPLE Pulse (2) Adjustment
3-3. SAMPLE Pulse (3) Adjustment
3-4. Y Gain Adjustment
3-5. R-Y Gain Adjustment
3-6. B-Y Gain Adjustment
3-7. Battery Alarm Set Adjustment
3-8. RET Video Gain Adjustment

Step 4. MD-54 Board Adjustment

4-1. R.G.B. Level Adjustment
4-2. Carrier Level Adjustment
4-3. SAMPLE Level Adjustment
4-4. SYNC Level Adjustment
4-5. RF Level Adjustment

Step 5. MD-55 Board Adjustment

5-1. 36 MHz Adjustment (1)
5-2. 36 MHz Adjustment (2)
5-3. 18 MHz Adjustment
5-4. SYNC Level Adjustment
5-5. SAMPLE Level Adjustment
5-6. CHROMA RF Adjustment (1)
5-7. CHROMA RF Adjustment (2)

Step 6. TR-47 Board Adjustment

6-1. Carrier Frequency Adjustment
6-2. RF Level Adjustment
6-3. Tuning Adjustment
6-4. H CONT Level Adjustment
6-5. MIC Level Adjustment
6-6. CHU INCOM Level Adjustment
6-7. CCU INCOM Demodulation Level Adjustment
6-8. PGM Demodulation Level Adjustment

Step 7. RX-6 Board Adjustment

7-1. PLL Free Run Frequency Adjustment
7-2. Return Video Level Adjustment

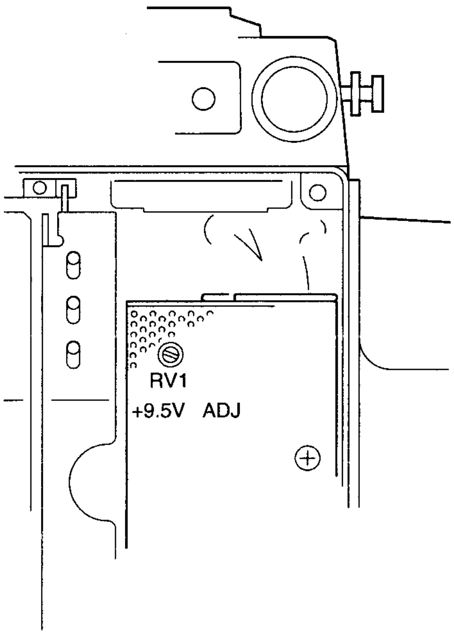
STEP 1. POWER SUPPLY SYSTEM ADJUSTMENT

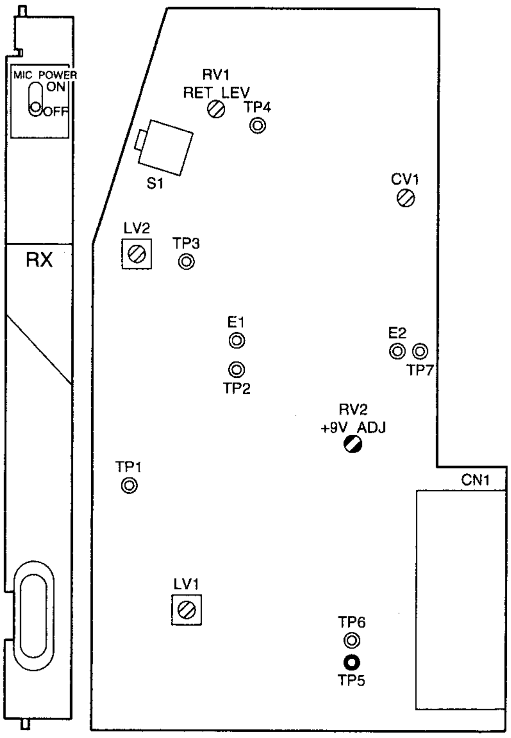
1-1. +9.5 V Adjustment

To be extended: RX-6
Equipment: Digital voltmeter
Test point: B4/Extension board
Adj. point: ⊘RV1/DC-43 board
Specification: 9.5±0.1 V

1-2. +9 V Adjustment

To be extended: RX-6
Equipment: Digital voltmeter
Test point: TP5
Adj. point: ⊘RV2 (+9 V ADJ)
Specification: 9.0±0.01 V



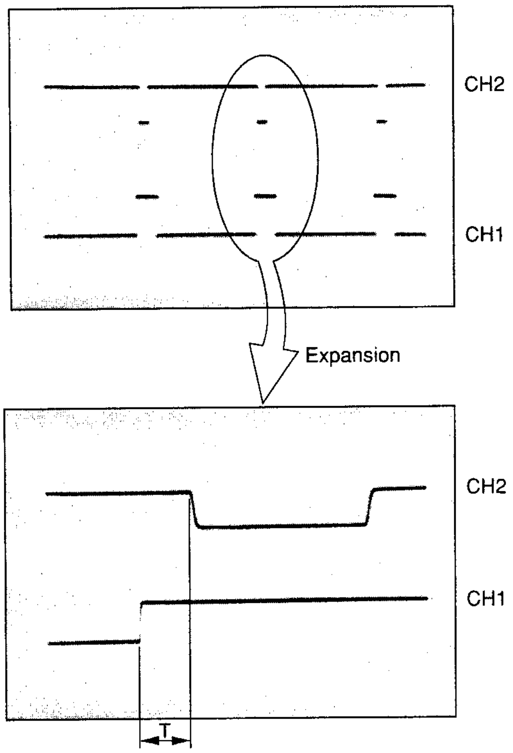

MIC POWER
ON
OFF
RX
RV1
RET LEV
TP4
S1
CV1
LV2
TP3
E1
TP2
E2
TP7
RV2
+9V ADJ
TP1
CN1
LV1
TP6
TP5

RX-6 BOARD (COMPONENT SIDE)

STEP 2. IF-423 BOARD ADJUSTMENT

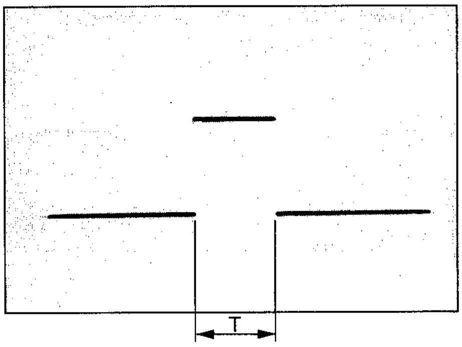
2-1. H BLKG PHASE Adjustment

To be extended: IF-423
Equipment: Oscilloscope
Test point: CH1 B8/Extension board
CH2 B11/Extension board
Adj. point: ⊘RV1 (H BLKG PHASE)
Specification: T=1.4±0.1 [μS] (NTSC)
T=1.65±0.2 [μS] (PAL)



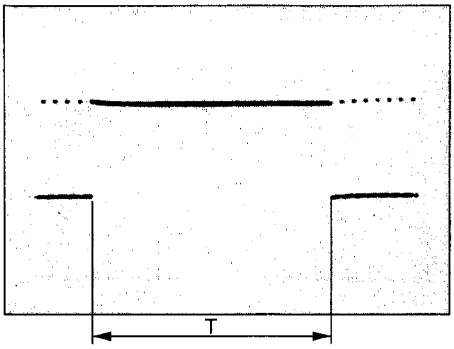
2-2. H BLKG WIDTH Adjustment

To be extended: IF-423
Equipment: Oscilloscope
Test point: B8/Extension board
Adj. point: ⊘RV4 (H BLKG WIDTH)
Specification: T=10.9±0.2 [μS] (NTSC)
T=12.0±0.2 [μS] (PAL)



2-3. V BLKG WIDTH Adjustment

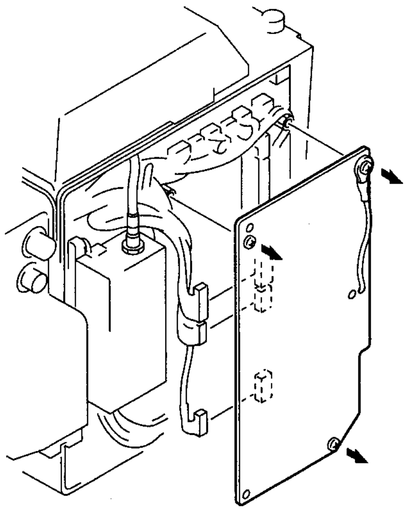
To be extended: IF-423
Equipment: Oscilloscope
Test point: B8/Extension board
Trigger: A5/Extension board
Adj. point: ⊘RV3 (V BLKG WIDTH)
Specification: T=20 H, 1270 [μS] (NTSC)
T=25 H, 1600 [μS] (PAL)



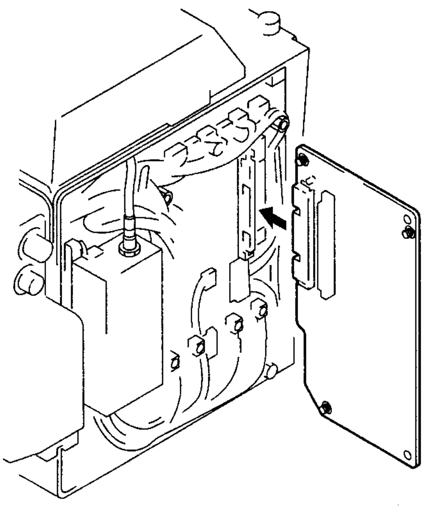
STEP 3. VA-80 BOARD ADJUSTMENT

Preparation

1. Remove the three screws securing the VA-80 board.
   Disconncet the three connectors, CN203, CN204 and CN205 on the VA-80 board.

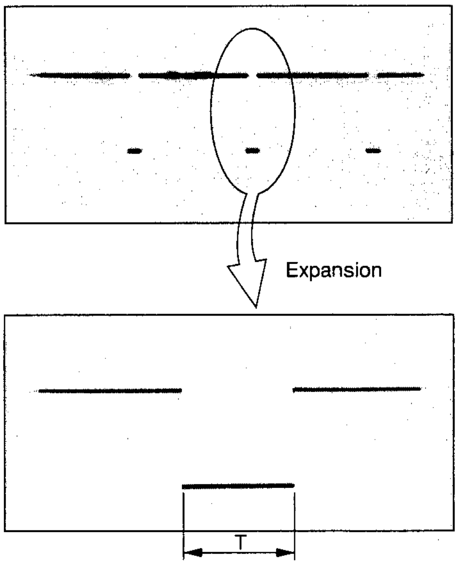


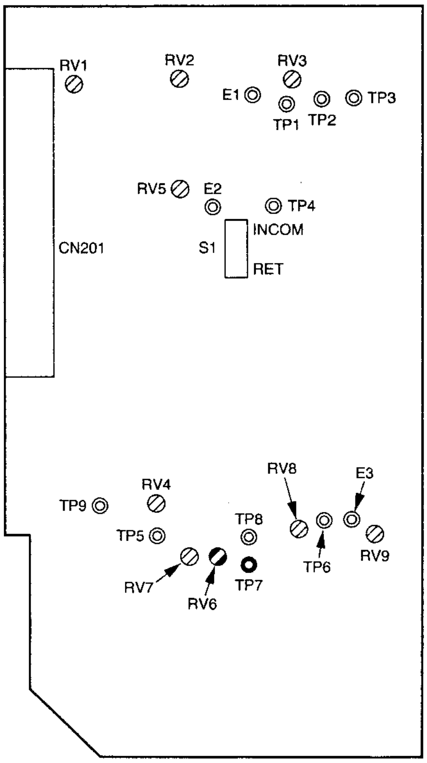
2. Connect the CN201 on the VA-80 board to the CN106 on the HN-106 board to adjust the VA-80 board.



3-1. SAMPLE PULSE (1) Adjustment

Equipment: Oscilloscope
Test point: TP7
Adj. point: ⊘RV6 (H PHASE)
Specification: T=6.0±0.2 [μS]

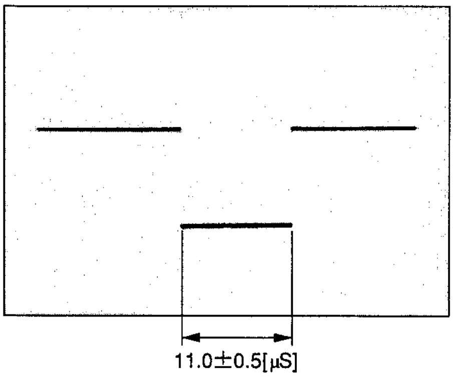

Expansion
T


RV1
RV2
RV3
E1
TP1
TP2
TP3
RV5
E2
TP4
CN201
S1
INCOM
RET
RV8
E3
RV4
TP9
TP8
TP5
RV9
TP6
RV7
TP7
RV6

VA-80 BOARD (COMPONENT SIDE)

3-2. SAMPLE PULSE (2) Adjustment

Equipment: Oscilloscope
Test point: TP9
Adj. point: ⊘RV7 (H WIDTH)
Specification: 11.0±0.5 [µS]

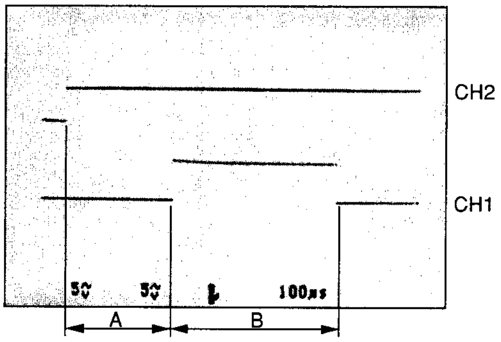


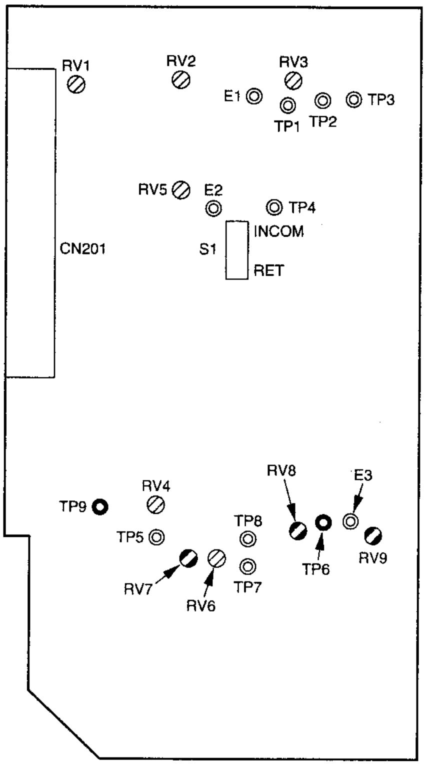
3-3. SAMPLE PULSE (3) Adjustment

To be extended: IF-423
Equipment: Oscilloscope
Test point: TP6
Adj. point: ⊘RV8 (SAMPLE PULSE PHASE)
⊘RV9 (SAMPLE PULSE WIDTH)

Procedure:

1. Apply the probe for CH1 of the oscilloscope to the test point A5 on the extension board and the probe for CH2 to TP6 on the VA-80 board.
2. Adjust ⊘RV8 so that the waveform A at CH1 is 286±10 µS.
3. Adjust ⊘RV9 so that the waveform B at CH1 is 440±10 µS.


CH2
CH1
5V
5V
100µs
A
B


RV1
RV2
RV3
E1
TP1
TP2
TP3
RV5
E2
TP4
INCOM
S1
RET
CN201
TP9
RV4
TP5
RV7
RV6
TP8
TP7
RV8
TP6
E3
RV9

VA-80 BOARD (COMPONENT SIDE)

3-4. Y GAIN Adjustment

Preparation

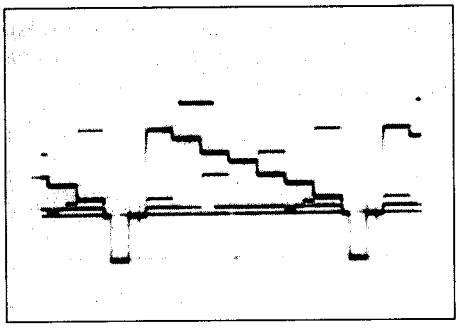
1. Turn off the POWER SW on the CCU and disconnect the triaxial cable.
2. Connect the DC IN connector on the CA-55A to the CMA-8/CMA-8CE using a cable. Set the POWER SW on the CA-55A to "EXT".

Equipment: Oscilloscope
Test point: TP1
Adj. point: ⊘RV1 (Y GAIN)

Procedure:

1. Solder a TP terminal on the soldering side at pin 3 of CN202. Measure the voltage at the TP terminal using an oscilloscope to get an input amplitude.
2. Measure the voltage at TP1 using the oscilloscope to get an output amplitude. Adjust ⊘RV1 so that the following specification is satisfied.

specification: $\frac{\text{output amplitude}}{\text{input amplitude}} = 2.0 \pm 0.01$



3-5. R-Y GAIN Adjustment

Preparation

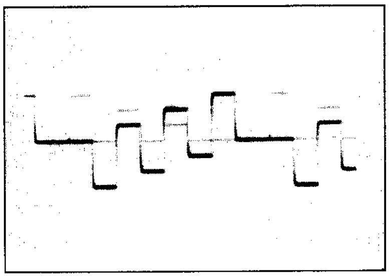
1. Turn off the POWER SW on the CCU and disconnect the triaxial cable.
2. Connect the DC IN connector on the CA-55A to the CMA-8/CMA-8CE using a cable. Set the POWER SW on the CA-55A to "EXT".

Equipment: Oscilloscope
Test point: TP2
Adj. point: ⊘RV2 (R-Y GAIN)

Procedure:

1. Solder a TP terminal on the soldering side at pin 4 of CN202. Measure the voltage at the TP terminal using an oscilloscope to get an input amplitude.
2. Measure the voltage at TP2 using the oscilloscope to get an output amplitude. Adjust ⊘RV2 so that the following specification is satisfied.

specification: $\frac{\text{output amplitude}}{\text{input amplitude}} = 2.0 \pm 0.01$



3-6. B-Y GAIN Adjustment

Preparation

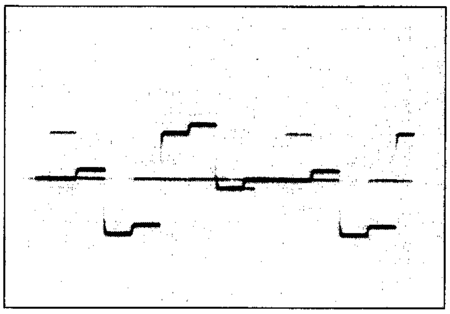
1. Turn off the POWER SW on the CCU and disconnect the triaxial cable.
2. Connect the DC IN connector on the CA-55A to the CMA-8/CMA-8CE using a cable. Set the POWER SW on the CA-55A to "EXT".

Equipment: Oscilloscope
Test point: TP3
Adj. point: ⊘RV3 (B-Y GAIN)

Procedure:

1. Solder a TP terminal on the soldering side at pin 5 of CN202. Measure the voltage at the TP terminal using the oscilloscope to get an input amplitude.
2. Measure the voltage at TP3 using the oscilloscope to get an output amplitude. Adjust ⊘RV3 so that the following specification is satisfied.

specification: $\frac{\text{output amplitude}}{\text{input amplitude}} = 2.0 \pm 0.01$



3-7. BATTERY ALARM SET Adjustment

This adjustment is complicated and severe, and it is strictly performed at the factory, so, do not turn the control in this adjustment unless something is wrong with the circuit.

Preparation

POWER SW→EXT
Solder TP terminals on the soldering side at pins 17 and 18 of CN201.

Equipment: Voltage Selector
Digital voltmeter
Oscilloscope
Test point: CN201-18 pin (GND: E1)
Adj. point: ⊘RV4 (BATT ALARM SET)

Procedure:

1. Turn ⊘RV4 fully clockwise.
2. Connect the digital voltmeter to the EXT DC connector on the CA and supply 11.2 V to the CA. Confirm the voltage between pin 17 of CN201 and GND is 11.2 V.
3. Apply the probe to pin 18 of CN201 (GND: E1). Turn ⊘RV4 counterclockwise slowly and stop it at the point where the DC voltage starts to flutter between GND (LOW) and 11.2 V (HIGH).

3-8. RET VIDEO GAIN Adjustment

Preparation

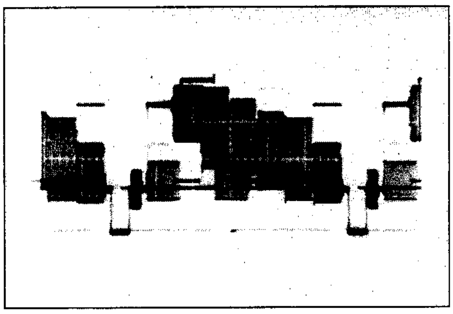
- Connect between RET1 and RET2 connectors with BNC cable.
- Terminate the other RET2 connector by 75 ohms.

Equipment: Oscilloscope
Test point: TP4
Adj. point: ⊘RV5 (RET VIDEO GAIN)

Procedure:

1. Solder a TP terminal on the soldering side at pin 35 of CN202. Measure the voltage at the TP terminal using the oscilloscope to get an input amplitude.
2. Measure the voltage at TP4 using the oscilloscope to get an output amplitude. Adjust ⊘RV5 so that the following specification is satisfied.

specification: $\frac{\text{output amplitude}}{\text{input amplitude}} = 2.0 \pm 0.01$



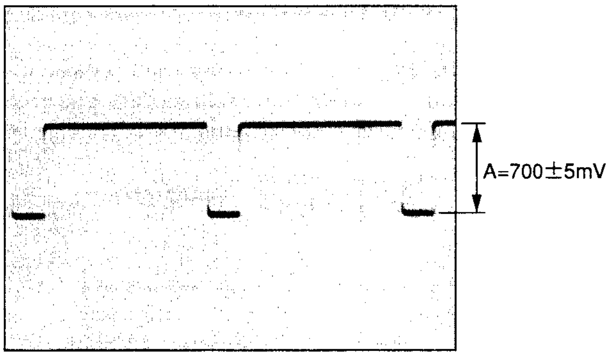
STEP 4. MD-54 BOARD ADJUSTMENT

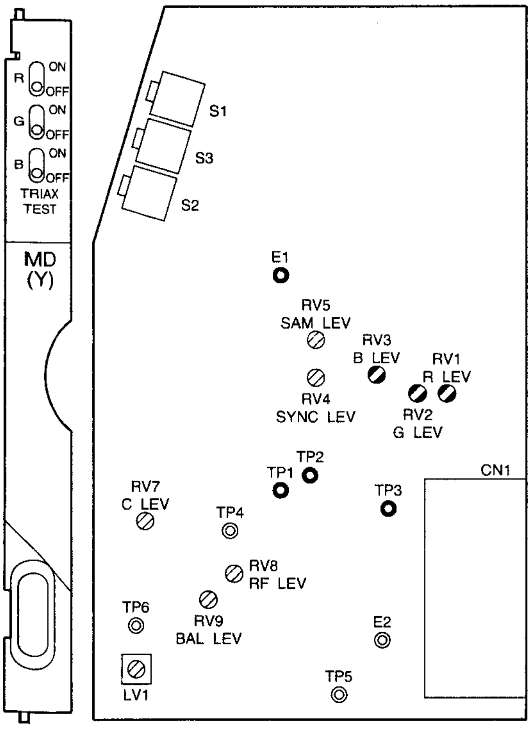
4-1. R.G.B. Level Adjustment

To be extended:	MD-54
Equipment:	Oscilloscope
Test point:	TP1 (R), TP2 (G), TP3 (B) GND: E1
Adj. point:	⊘RV1 (R LEV) ⊘RV2 (G LEV) ⊘RV3 (B LEV)

Procedure:

1. Adjust ⊘RV2 so that the G-ch waveform level at TP2 is 700±5 mV.
2. Adjust ⊘RV1 so that the R-ch waveform level at TP1 is within ±5 mV of G-ch level measured in Procedure 1.
3. Adjust ⊘RV3 so that the B-ch waveform level at TP3 is within ±5 mV of G-ch level measured in Procedure 1.




R
ON
OFF
G
ON
OFF
B
ON
OFF
TRIAX TEST
MD (Y)
S1
S3
S2
E1
RV5
SAM LEV
RV3
B LEV
RV1
R LEV
RV4
SYNC LEV
RV2
G LEV
TP2
TP1
CN1
RV7
C LEV
TP4
TP3
RV8
RF LEV
TP6
RV9
BAL LEV
E2
LV1
TP5

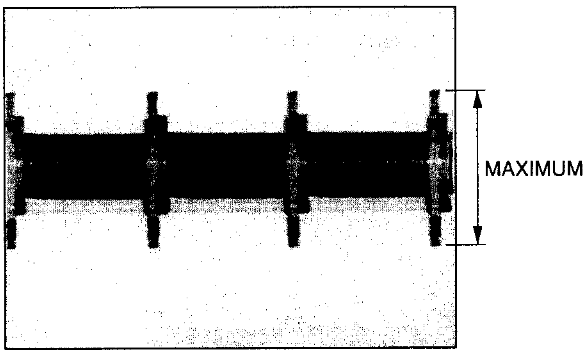
MD-54 BOARD (COMPONENT SIDE)

4-2. Carrier Level Adjustment

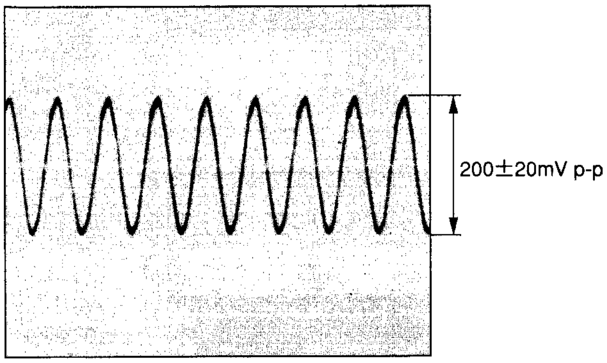
To be extended: MD-54
Equipment: Oscilloscope
Test point: TP5 (GND: E2)
TP6 (GND: E2)
Adj. point: ⊘LV1
⊘RV7 (C LEV)

Procedure:

1. Adjust ⊘LV1 so that the level at TP5 is maximum.



2. Adjust ⊘RV7 so that the level at TP6 is 200±20 mV p-p.

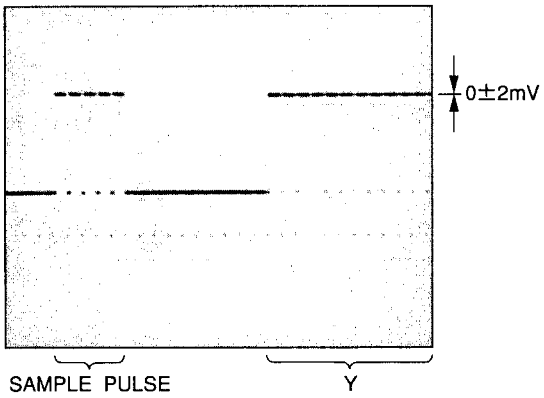


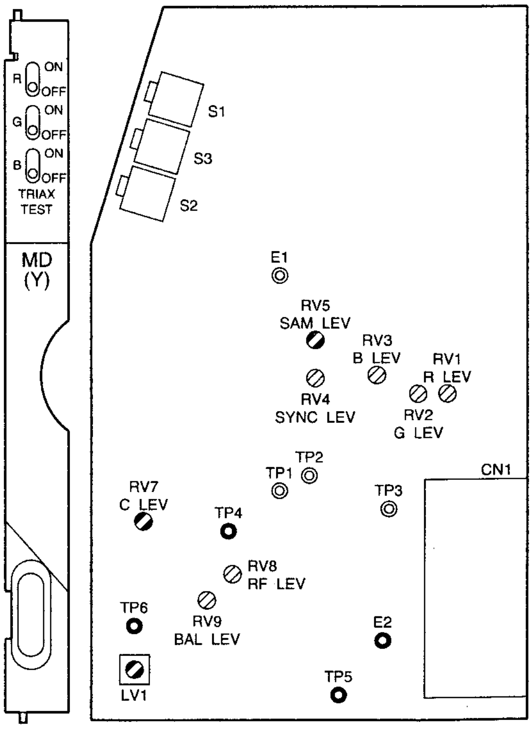
4-3. SAMPLE Level Adjustment

To be extended: MD-54
Equipment: Oscilloscope
Test point: TP4
Adj. point: ⊘RV5 (SAM LEV)

Procedure:

1. Adjust ⊘RV5 so that the difference between the sample pulse level and Y level is 0±2 mV.

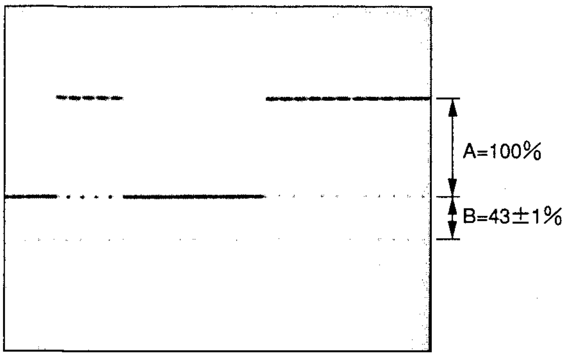


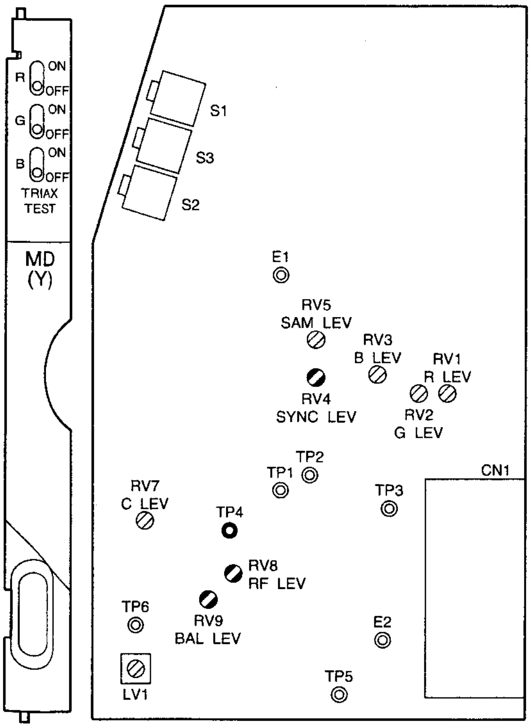

R ON OFF
G ON OFF
B ON OFF
TRIAX TEST
MD (Y)
S1
S3
S2
E1
RV5 SAM LEV
RV3 B LEV
RV1 R LEV
RV4 SYNC LEV
RV2 G LEV
TP2
TP1
TP3
CN1
RV7 C LEV
TP4
RV8 RF LEV
TP6
RV9 BAL LEV
E2
LV1
TP5

MD-54 BOARD (COMPONENT SIDE)

4-4. SYNC Level Adjustment

To be extended: MD-54
Equipment: Oscilloscope
Test point: TP4
Adj. point: ⊘RV4 (SYNC LEV)
Specification: B=43±1 %




R ON OFF
G ON OFF
B ON OFF
TRIAX TEST
MD (Y)
S1
S3
S2
E1
RV5 SAM LEV
RV3 B LEV
RV1 R LEV
RV4 SYNC LEV
RV2 G LEV
TP2
TP1
TP3
CN1
RV7 C LEV
TP4
RV8 RF LEV
TP6
RV9 BAL LEV
E2
LV1
TP5

MD-54 BOARD (COMPONENT SIDE)

4-5. RF Level Adjustment

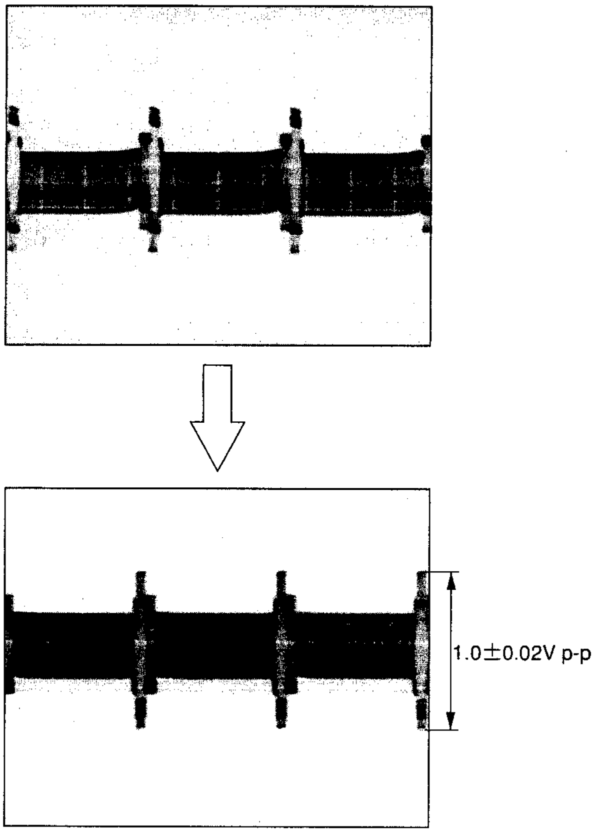
Preparation

- Extract the DM-67 board of CCU-355 using the extension board (EX-189).
- Connect the CCU-355 to the CA-3511 with a Triaxial cable of less than 1 meter.

To be extended: MD-54
Equipment: Oscilloscope
Test point: TP10 (GND: TP11)/CCU-355 Extension board
Adj. point: ⊘RV8 (RF LEV)
⊘RV9 (BAL SET)

Procedure:

1. Adjust ⊘RV8 so that the waveform at TP10 is flat.



2. Adjust ⊘RV9 so that the level at TP10 is 1.0±0.02 V p-p.

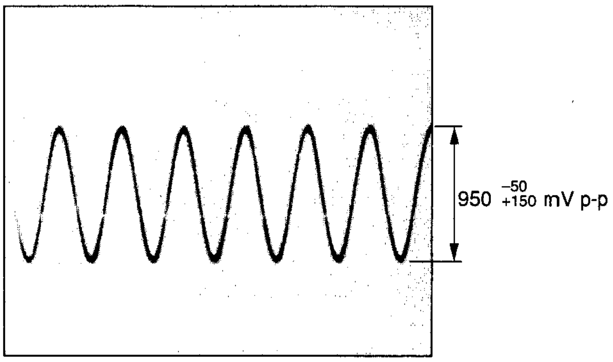
STEP 5. MD-55 BOARD ADJUSTMENT

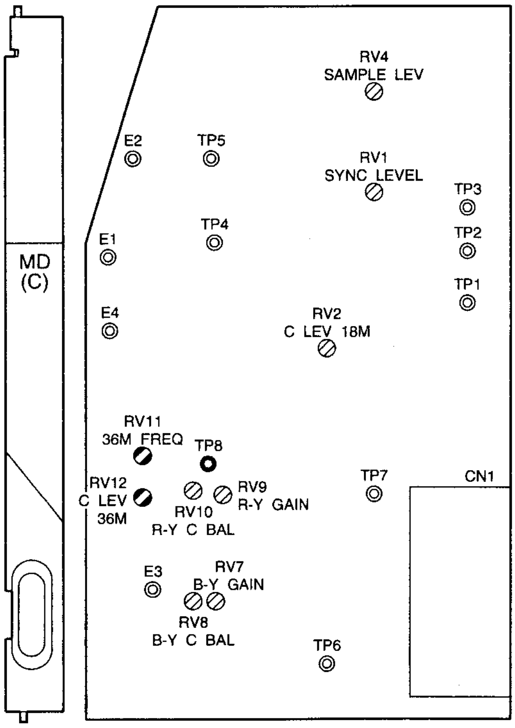
5-1. 36 MHz Adjustment (I)

To be extended: MD-55
Equipment: Frequency counter
Test point: TP8
Adj. point: ⊘RV11 (36 M FREQ)
Specification: 36 MHz±10 Hz

5-2. 36 MHz Adjustment (II)

To be extended: MD-55
Equipment: Oscilloscope
Test point: TP8
Adj. point: ⊘RV12 (C LEV 36M)
Specification: 950^{-50}_{+150} mV p-p

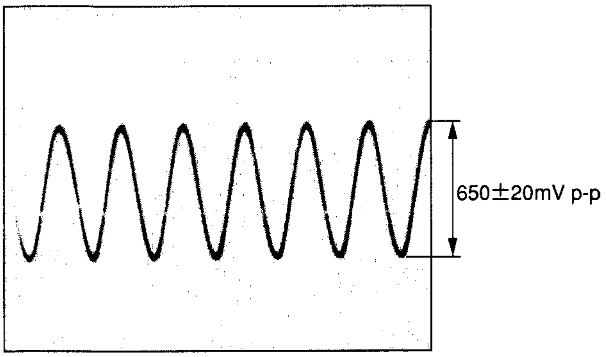



MD
(C)
RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP4
TP2
E1
TP1
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)

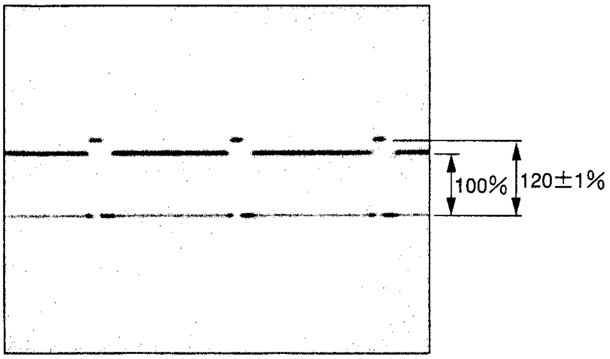
5-3. 18 MHz Adjustment

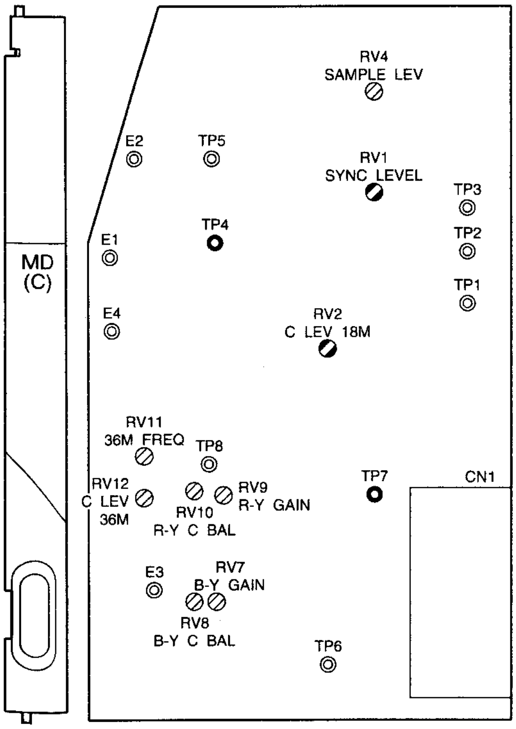
To be extended:	MD-55
Equipment:	Oscilloscope
Test point:	TP7 (GND: E4)
Adj. point:	⊘RV2 (C LEV 18 M)
Specification:	650±20 mV p-p



5-4. SYNC Level Adjustment

Preparation:	S2 (G), S3 (B)/MD-54→OFF
To be extended:	MD-55
Equipment:	Oscilloscope
Test point:	TP4 (GND: E1)
Adj. point:	⊘RV1 (SYNC LEVEL)
Specification:	120±1 %

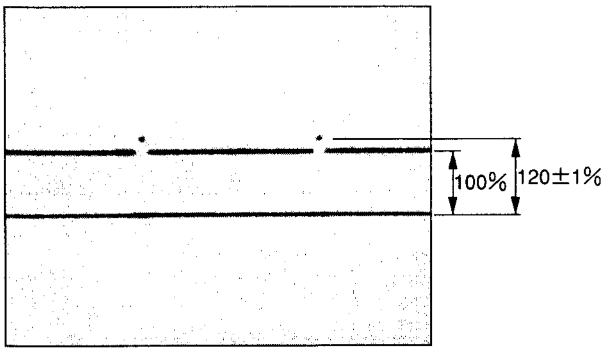


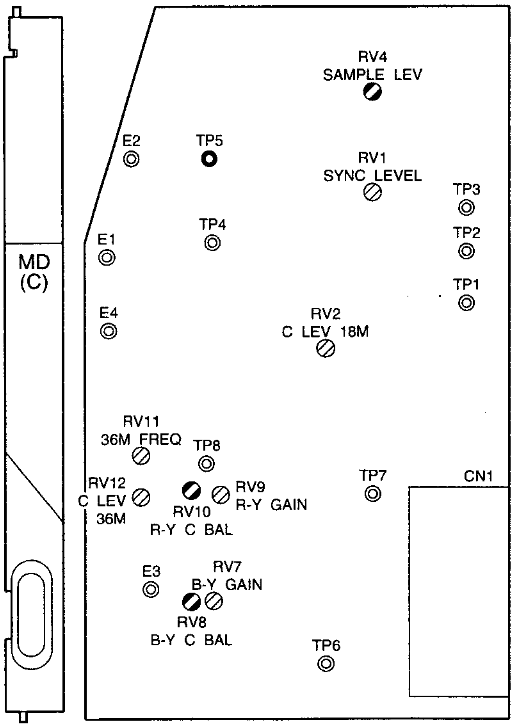

RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP4
TP2
E1
MD
(C)
TP1
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)

5-5. SAMPLE Level Adjustment

Preparation: S1 (R), S2 (G)/MD-54→OFF
To be extended: MD-55
Equipment: Oscilloscope
Test point: TP5
Adj. point: ⊘RV4 (SAMPLE LEV)
Specification: 120±1 %




MD
(C)
RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP4
TP2
E1
TP1
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
RV12
C LEV
36M
RV10
R-Y C BAL
RV9
R-Y GAIN
TP7
CN1
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

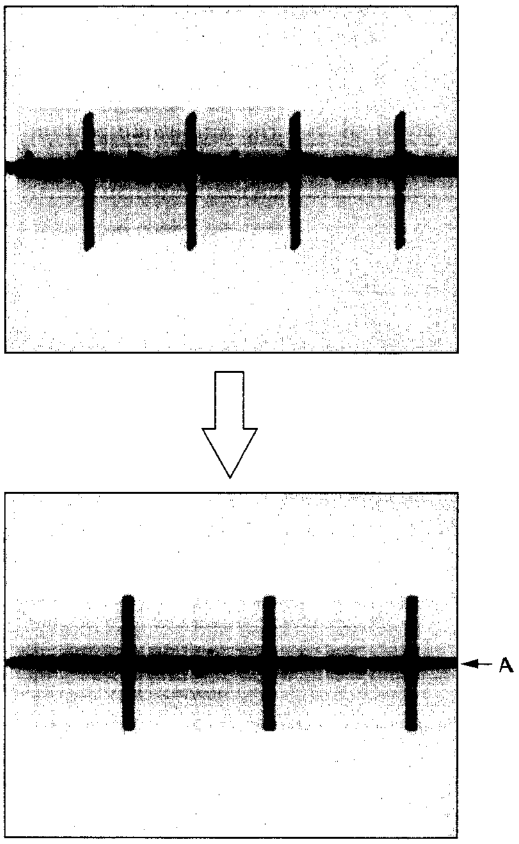
MD-55 BOARD (COMPONENT SIDE)

5-6. CHROMA RF Adjustment (I)

To be extended: MD-55
Equipment: Oscilloscope
Test point: TP6 (GND: E3)
Adj. point: ⊘RV8 (B-Y C BAL)
⊘RV10 (R-Y C BAL)

Procedure:

1. Adjust ⊘RV10 so that the waveform at TP6 is flat.



2. Adjust ⊘RV8 so that the amplitude portion "A" of the waveform is minimized.

5-7. CHROMA RF Adjustment (II)

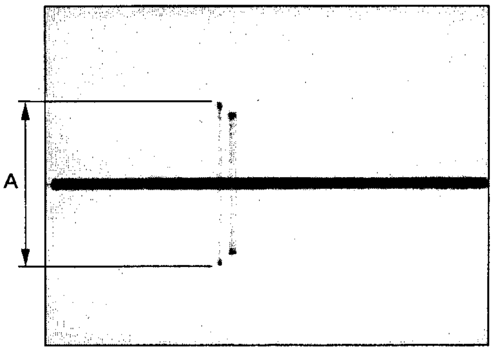
Preparation: S1 (R), S2 (G), S3 (B)/MD-54→OFF

- Extract the DM-67 board of CCU-355 using the extension board (EX-189).
- Connect the CCU-355 to the CA-3511 with a triaxial cable of less than 1 meter.

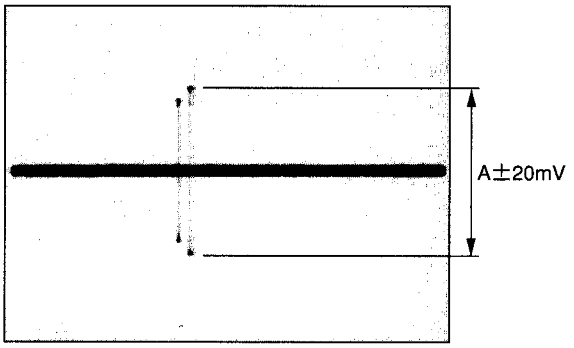
To be extended: MD-55
Equipment: Oscilloscope
Test point: TP50 (GND: TP49)/DM-67
Adj. point: ⊘RV9 (R-Y GAIN)
⊘RV7 (B-Y GAIN)

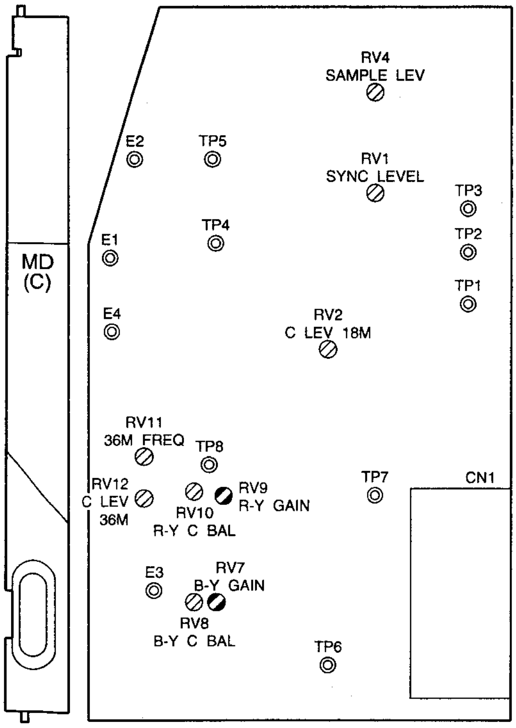
Procedure:

1. Adjust ⊘RV9 so that the amplitude portion "A" of the SYNC level is 1600±40 mV.

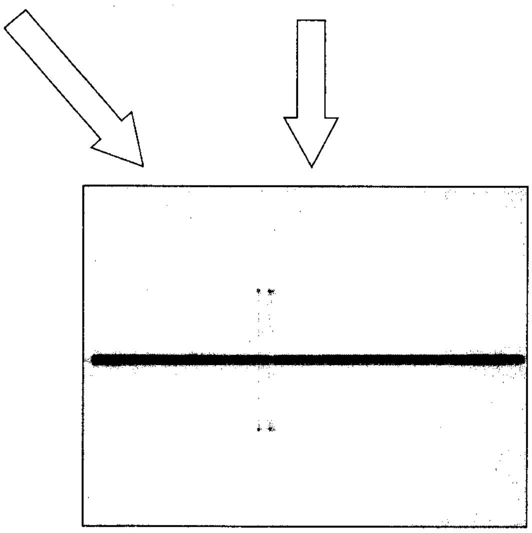


2. Adjust ⊘RV7 so that the SAMPLE level is A±20 mV.




RV4
SAMPLE LEV
E2
TP5
RV1
SYNC LEVEL
TP3
TP4
TP2
E1
MD
(C)
TP1
E4
RV2
C LEV 18M
RV11
36M FREQ
TP8
TP7
CN1
RV12
C LEV
36M
RV9
R-Y GAIN
RV10
R-Y C BAL
E3
RV7
B-Y GAIN
RV8
B-Y C BAL
TP6

MD-55 BOARD (COMPONENT SIDE)



STEP 6. TR-47 BOARD ADJUSTMENT

6-1. Carrier Frequency Adjustment

Preparation: MIC switch/side panel→ON

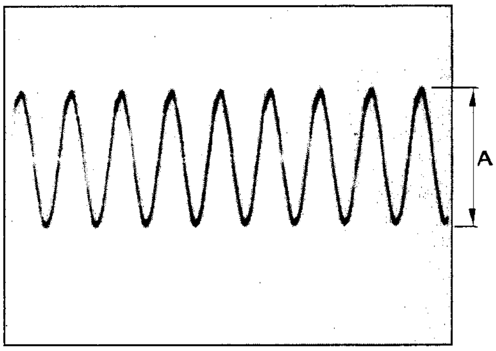
To be extended: TR-47
Equipment: Frequency counter

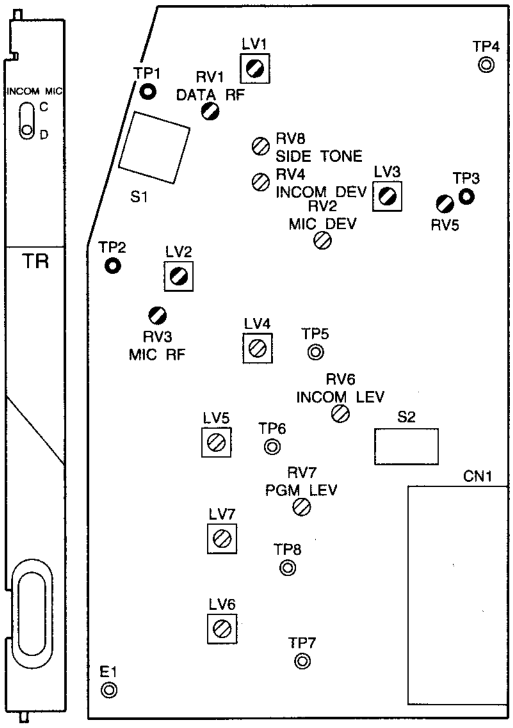
Test Point	Adj. Point	Specification
TP1	⊘LV1 (6.2 M ADJ)	6.2±0.003 MHz
TP2	⊘LV2 (6.8 M ADJ)	6.8±0.003 MHz
TP3	⊘LV3 (5.7 M ADJ)	5.7±0.003 MHz

6-2. RF Level Adjustment

To be extended: TR-47
Equipment: Oscilloscope

Test Point	Adj. Point	Specification
TP1	⊘RV1 (DATA RF	250±10 mV
TP2	⊘RV3 (MIC RF)	250±10 mV
TP3	⊘RV5 (INCOM RF)	300±10 mV



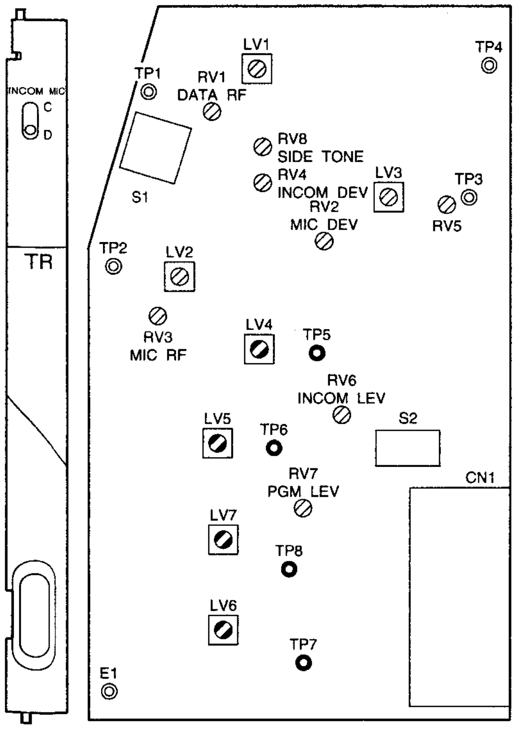

INCOM MIC
C
D
TR
TP1
RV1
DATA RF
LV1
TP4
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
S1
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
S2
LV5
TP6
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

6-3. TUNING Adjustment

To be extended: TR-47
Equipment: Digital Voltmeter

Test Point	Adj. Point	Specification
TP5	⊘LV4 (4.5 M TUNE)	4.4±0.1 V
TP6	⊘LV5 (4.9 M TUNE)	4.4±0.1 V
TP7	⊘LV6 (3.6 M TUNE)	5.0±0.1 V


INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
S1
RV2
MIC DEV
RV5
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

TR-47 BOARD (COMPONENT SIDE)

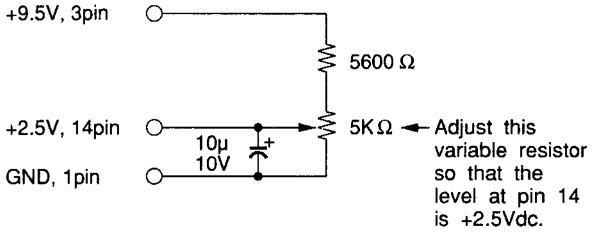
6-4. H CONT Level Adjustment

Note:

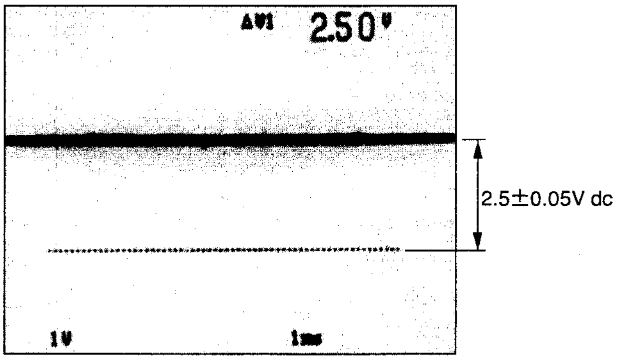
- Unless the variable inductor LV7 is replaced, do not perform this adjustment. Because it is very severe.
- When adjustment is to be performed, connect a completely adjusted camera control unit CCU-355 to the camera.

Preparation:

- Extract the SG-131 board from the CCU-355.
- Make a jig shown below and connect it to pins 1, 3 and 14 for the TR-46 board of CCU-355. 2.5 V dc will be supplied between pin 14 and GND.


+9.5V, 3pin
5600 Ω
+2.5V, 14pin
10μ
10V
5KΩ
GND, 1pin
Adjust this variable resistor so that the level at pin 14 is +2.5Vdc.

To be extended: TR-47
Equipment: Oscilloscope
Test point: TP8
Adj. point: ⊘LV7 (3.9 M TUNE)
Specification: 2.5±0.05 V dc

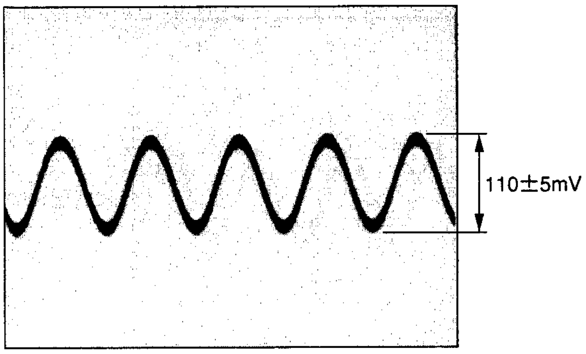

ΔV1 2.50V
2.5±0.05V dc
1V
1ms

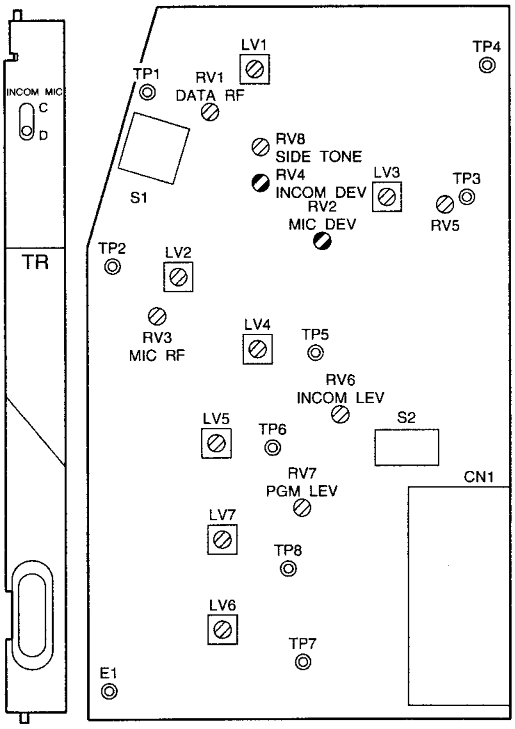
6-5. MIC Level Adjustment

Note:
When adjustment is to be performed, connect a completely adjusted camera control unit CCU-355 to the camera.

Preparation:
- MIC connector→Open
- Supply the 1 kHz, –60 dBs sine wave from the low frequency oscillator to B19, B20/extension board.

To be extended: TR-47, TR-46 (CCU-355)
Equipment: Low frequency oscillator
Oscilloscope
Test point: 33 pin/TR-46 (CCU-355)
Adj. point: ⊘RV2 (MIC DEV)
Specification: 110±5 mV




INCOM MIC
C
D
TR
LV1
TP4
TP1
RV1
DATA RF
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
S1
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
LV5
TP6
S2
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

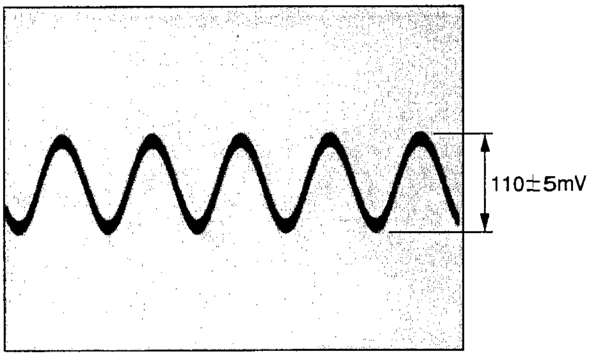
TR-47 BOARD (COMPONENT SIDE)

6-6. CHU INCOM Level Adjustment

Note:
When adjustment is to be performed, connect a completely adjusted camera control unit CCU-355 to the camera.

Preparation:
- INCOM connector→Open
- Supply the 1 kHz, –20 dBs sine wave from the low frequency oscillator to A12, A13/extension board.

To be extended: TR-47, TR-46 (CCU-355)
Equipment: Low frequency oscillator
Oscilloscope
Test point: 37 pin/TR-46 (CCU-355)
Adj. point: ⊘RV4 (INCOM DEV)
Specification: 110±5 mV

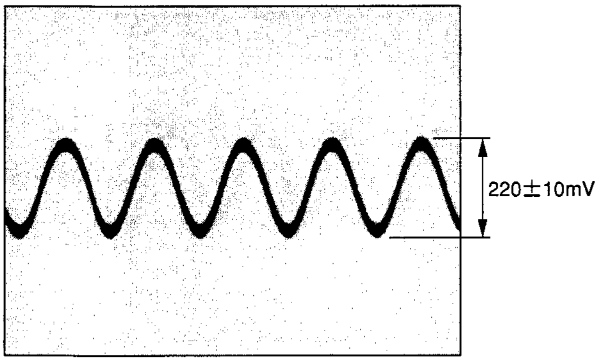


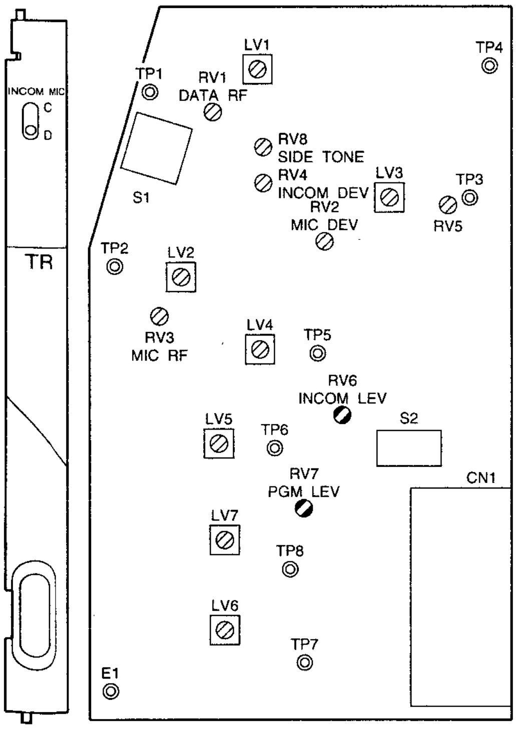
6-7. CCU INCOM Demodulation Level Adjustment

Note:
When adjustment is to be performed, connect a completely adjusted camera control unit CCU-355 to the camera.

Preparation:
Supply the 1 kHz, 0 dBs sine wave from the low frequency oscillator to INCOM connector of CCU-355 rear panel.

To be extended: TR-47
Equipment: Low frequency oscillator
Test point: B14/extension board
Adj. point: ⊘RV6 (INCOM LEVEL)
Specification: 220±10 mV




INCOM MIC
C
D
TR
TP1
RV1
DATA RF
LV1
TP4
RV8
SIDE TONE
RV4
INCOM DEV
LV3
TP3
RV2
MIC DEV
RV5
S1
TP2
LV2
RV3
MIC RF
LV4
TP5
RV6
INCOM LEV
S2
LV5
TP6
RV7
PGM LEV
CN1
LV7
TP8
LV6
TP7
E1

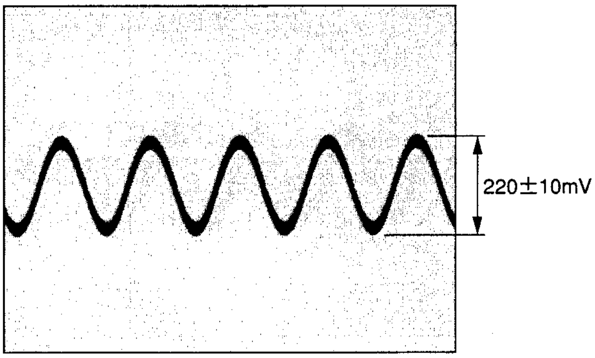
TR-47 BOARD (COMPONENT SIDE)

6-8. PGM Demodulation Level Adjustment

Note:
When adjustment is to be performed, connect a completely adjusted camera control unit CCU-355 to the camera.

Preparation:
Supply the 1 kHz, 0 dBs sine wave from the low frequency oscillator to PGM connector of CCU-355 rear panel.

To be extended: TR-47
Equipment: Low frequency oscillator
Oscilloscope
Test point: B11/extension board
Adj. point: ⊘RV7 (PGM LEVEL)
Specification: 220±10 mV



STEP 7. RX-6 BOARD ADJUSTMENT

7-1. PLL Free Run Frequency Adjustment

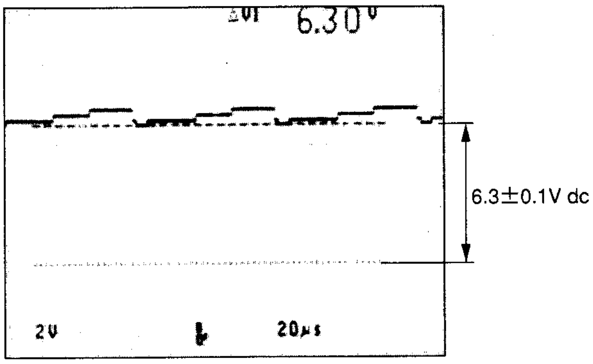
Preparation:

- Connect a test signal generator to the RET 1 connector on the rear panel of the CCU-355 with a BNC cable.

To be extended: RX-6
Equipment: Oscilloscope
Test signal generator
Test point: TP3
Adj. point: ⊘LV2 (PLL SET)

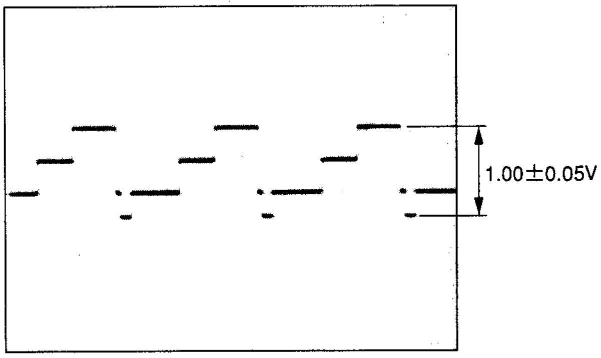
Procedures:

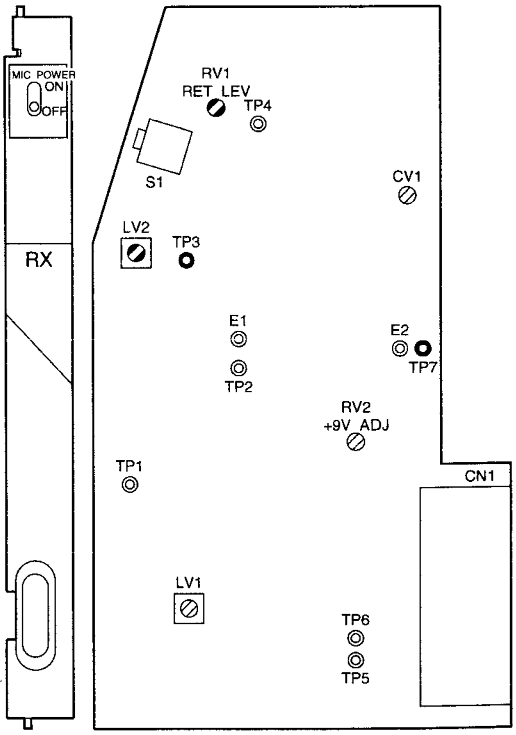
1. Set each mode for the test signal generator as follows.
   - 3 STEP
   - LINEARITY
   - APL 50 %
   - STD
   - B/W
2. Adjust ⊘LV2 so that the DC voltage of waveform is 6.3±0.1 V dc.



7-2. Return Video Level Adjustment

To be extended: RX-6
Equipment: Oscilloscope
Test signal generator
Test point: TP7
Adj. point: ⊘RV1 (RET LEVEL)
Specification: 1.00±0.05 V

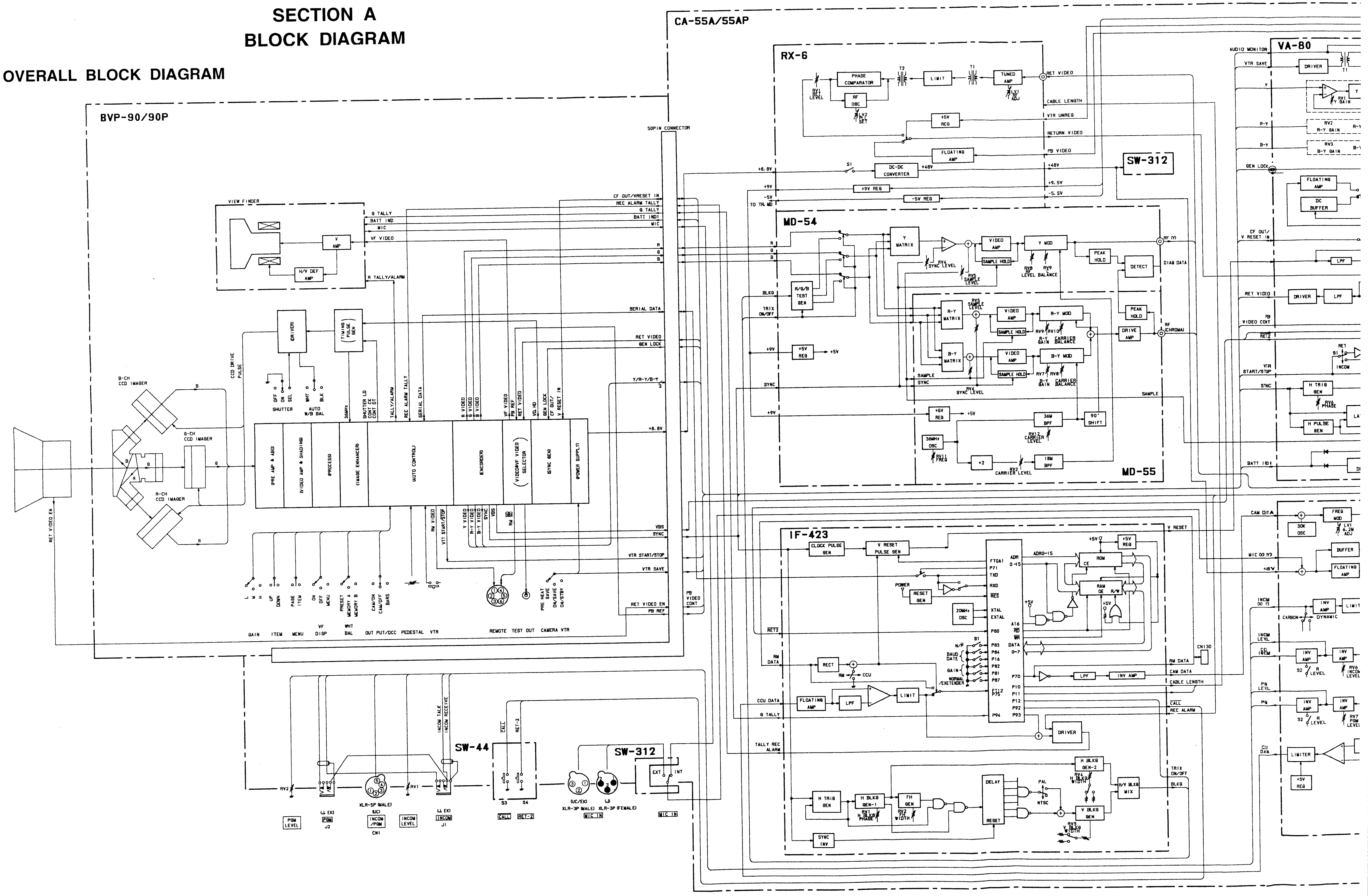


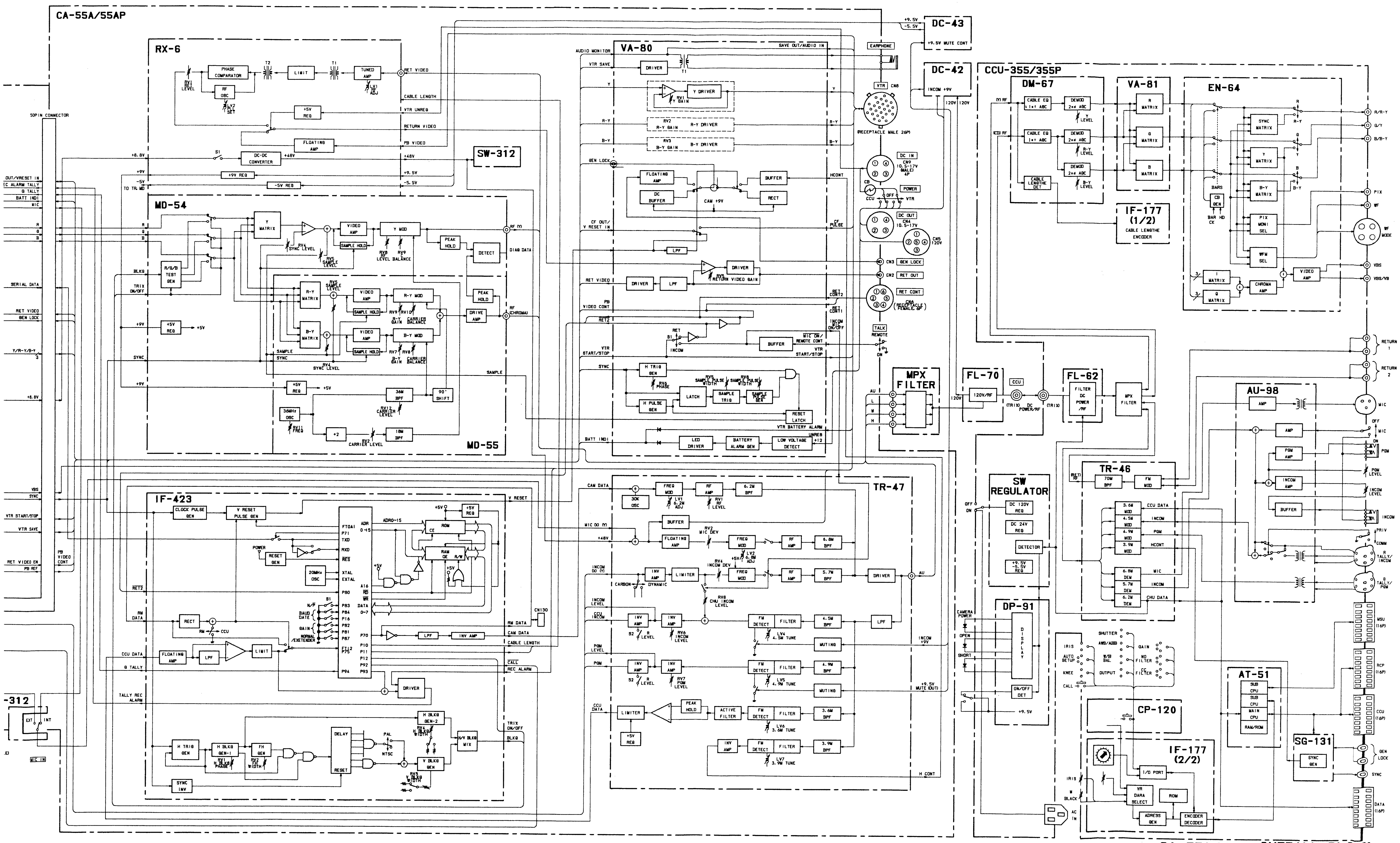

MIC POWER
ON
OFF
RX
RV1
RET LEV
TP4
S1
CV1
LV2
TP3
E1
E2
TP2
TP7
RV2
+9V ADJ
TP1
CN1
LV1
TP6
TP5

RX-6 BOARD (COMPONENT SIDE)

SECTION A
BLOCK DIAGRAM

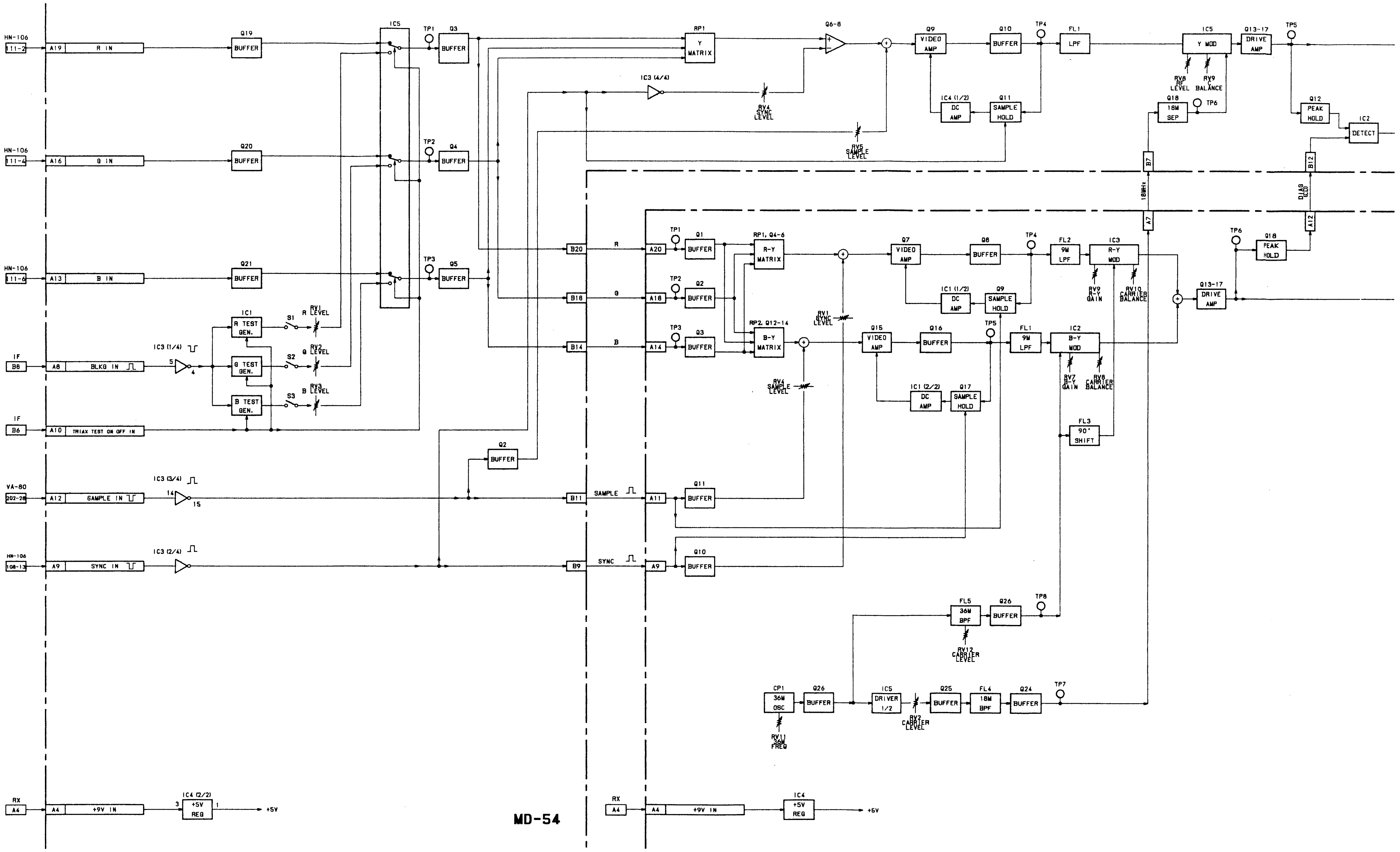
OVERALL BLOCK DIAGRAM

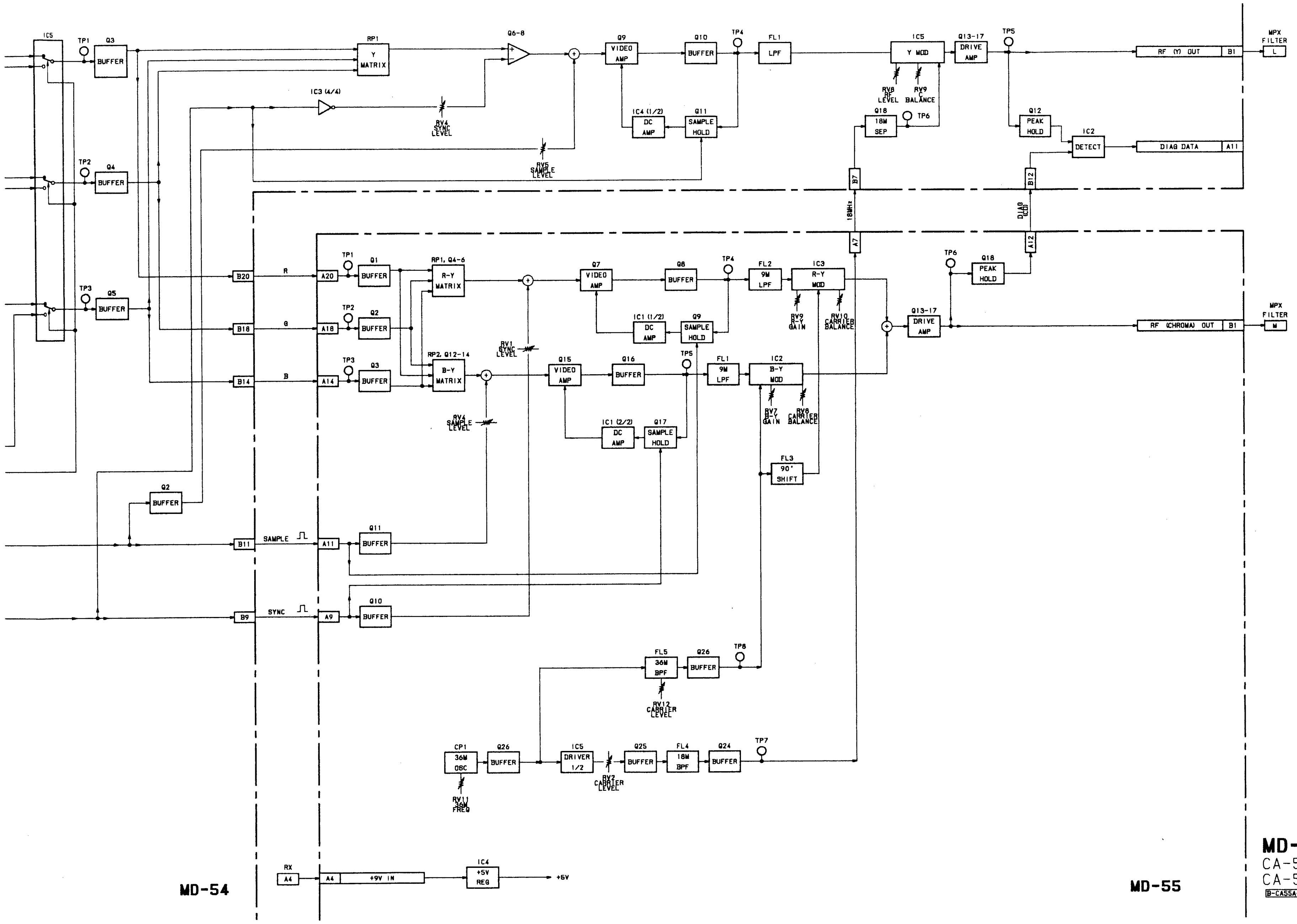

BVP-90/90P
CA-55A/55AP
RX-6
MD-54
MD-55
IF-423
SW-312
SW-44
VA-80
VIEW FINDER
V AMP
H/V DEF AMP
B-CH CCD IMAGER
G-CH CCD IMAGER
R-CH CCD IMAGER
(DRIVER)
(TIMING PULSE GEN)
(PRE AMP & ABO)
(VIDEO AMP & SHADING)
(PROCESS)
(IMAGE ENHANCER)
(AUTO CONTROL)
(ENCODER)
(VIDEO/VF VIDEO SELECTOR)
(SYNC GEN)
(POWER SUPPLY)
50PIN CONNECTOR
PHASE COMPARATOR
RF OSC
LIMIT
TUNED AMP
+5V REG
FLOATING AMP
DC-DC CONVERTER
+9V REG
-5V REG
Y MATRIX
VIDEO AMP
Y MOD
SAMPLE HOLD
PEAK HOLD
DETECT
R/G/B TEST GEN
R-Y MATRIX
B-Y MATRIX
R-Y MOD
B-Y MOD
DRIVE AMP
36M BPF
90° SHIFT
36MHz OSC
18M BPF
CLOCK PULSE GEN
V RESET PULSE GEN
RESET GEN
20MHz OSC
ROM
RAM
RECT
FLOATING AMP
LPF
LIMIT
DRIVER
INV AMP
H TRIG GEN
H BLKG GEN-1
H BLKG GEN-2
FH GEN
DELAY
RESET
V BLKG GEN
H/V BLKG MIX
SYNC INV
DRIVER
DC BUFFER
H PULSE GEN
FREQ MOD
30K OSC
BUFFER
LIMITER
GAIN
ITEM
MENU
VF DISP
WHT BAL
OUT PUT/DCC
PEDESTAL
VTR
REMOTE
TEST OUT
CAMERA VTR
XLR-5P (MALE)
XLR-3P (MALE)
XLR-3P (FEMALE)
PGM LEVEL
INCOM /PGM
INCOM LEVEL
INCOM
CALL
RET-2
MIC IN
RET VIDEO
CABLE LENGTH
VTR UNREG
RETURN VIDEO
PB VIDEO
SERIAL DATA
GEN LOCK
VBS
SYNC
VTR START/STOP
VTR SAVE
RET VIDEO EN
PB REF
RM DATA
CAM DATA
CCU DATA
G TALLY
TALLY REC ALARM
TRIX ON/OFF
BLKG


CA-55A/55AP
50PIN CONNECTOR
RX-6
SW-312
MD-54
MD-55
IF-423
VA-80
TR-47
DC-43
DC-42
CCU-355/355P
DM-67
VA-81
EN-64
IF-177 (1/2)
MPX FILTER
FL-70
FL-62
AU-98
TR-46
SW REGULATOR
DP-91
CP-120
IF-177 (2/2)
AT-51
SG-131
-312

CA-55A/55AP OVERALL BLOCK
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-OABLOCK/M S4

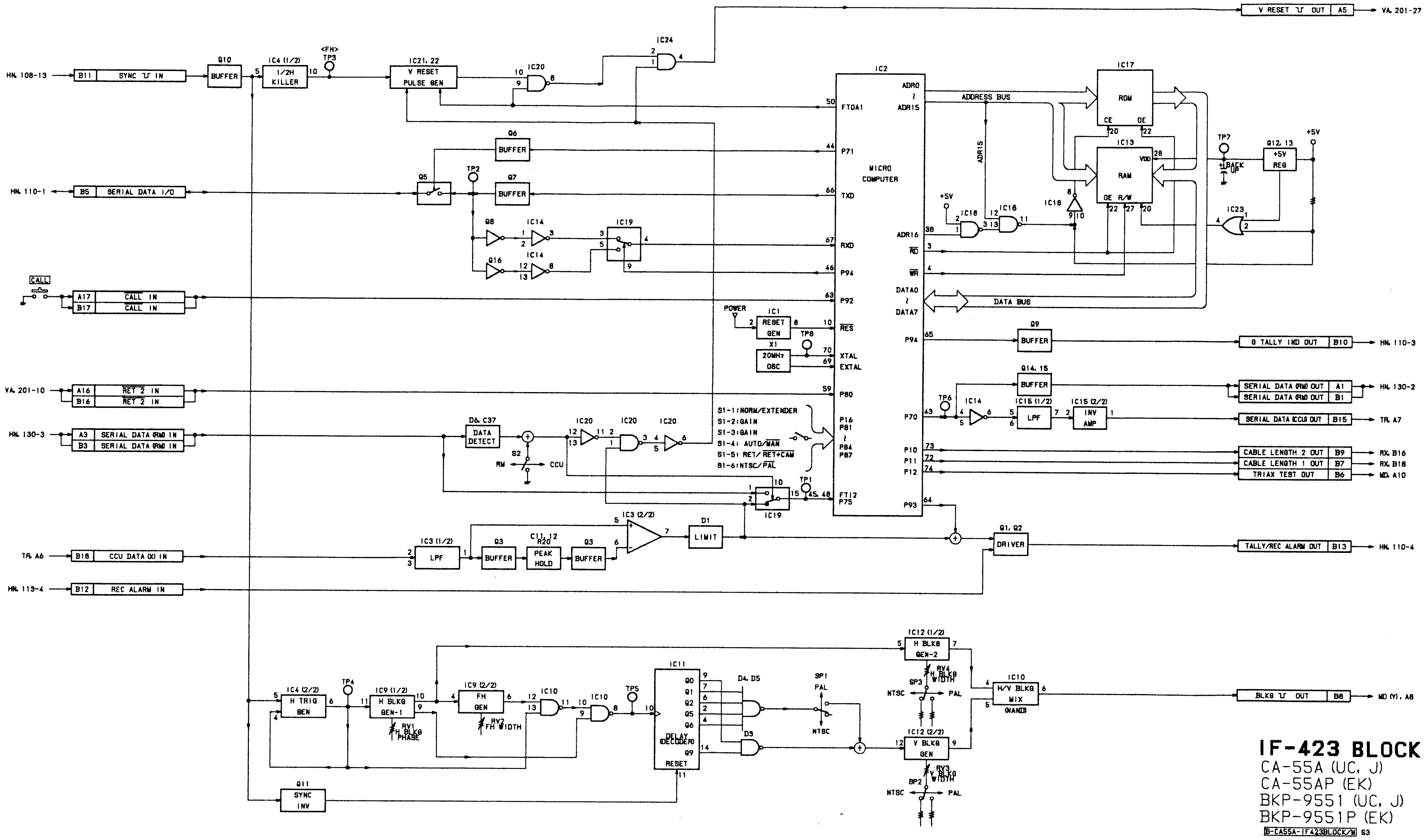
MD-54/55 BLOCK


HN-106
111-2
A19
R IN
Q19
BUFFER
HN-106
111-4
A16
G IN
Q20
BUFFER
HN-106
111-6
A13
B IN
Q21
BUFFER
IC5
TP1
Q3
BUFFER
TP2
Q4
BUFFER
TP3
Q5
BUFFER
IC1
R TEST GEN.
G TEST GEN.
B TEST GEN.
S1
S2
S3
RV1 R LEVEL
RV2 G LEVEL
RV3 B LEVEL
IF
B8
A8
BLKG IN
IC3 (1/4)
5
4
IF
B6
A10
TRIAX TEST ON OFF IN
Q2
BUFFER
VA-80
202-28
A12
SAMPLE IN
IC3 (3/4)
14
15
HN-106
108-13
A9
SYNC IN
IC3 (2/4)
RX
A4
A4
+9V IN
IC4 (2/2)
3
1
+5V REG
+5V
RP1
Y MATRIX
Q6-8
IC3 (4/4)
RV4 SYNC LEVEL
RV5 SAMPLE LEVEL
Q9
VIDEO AMP
Q10
BUFFER
TP4
FL1
LPF
IC4 (1/2)
DC AMP
Q11
SAMPLE HOLD
IC5
Y MOD
RV8 RF LEVEL
RV9 C BALANCE
Q13-17
DRIVE AMP
TP5
Q18
18M SEP
TP6
Q12
PEAK HOLD
IC2
DETECT
B7
18MHz
A7
B12
DIAG (CD)
A12
B20
R
A20
TP1
Q1
BUFFER
RP1, Q4-6
R-Y MATRIX
B18
G
A18
TP2
Q2
BUFFER
B14
B
A14
TP3
Q3
BUFFER
RP2, Q12-14
B-Y MATRIX
RV1 SYNC LEVEL
RV4 SAMPLE LEVEL
Q7
VIDEO AMP
Q8
BUFFER
TP4
FL2
9M LPF
IC3
R-Y MOD
RV9 R-Y GAIN
RV10 CARRIER BALANCE
IC1 (1/2)
DC AMP
Q9
SAMPLE HOLD
Q15
VIDEO AMP
Q16
BUFFER
TP5
FL1
9M LPF
IC2
B-Y MOD
RV7 B-Y GAIN
RV8 CARRIER BALANCE
IC1 (2/2)
DC AMP
Q17
SAMPLE HOLD
FL3
90° SHIFT
Q13-17
DRIVE AMP
TP6
Q18
PEAK HOLD
B11
SAMPLE
A11
Q11
BUFFER
B9
SYNC
A9
Q10
BUFFER
FL5
36M BPF
Q26
BUFFER
TP8
RV12 CARRIER LEVEL
CP1
36M OSC
RV11 36M FREQ
Q26
BUFFER
IC5
DRIVER 1/2
RV2 CARRIER LEVEL
Q25
BUFFER
FL4
18M BPF
Q24
BUFFER
TP7
MD-54
RX
A4
A4
+9V IN
IC4
+5V REG
+5V


IC5
TP1
Q3
BUFFER
TP2
Q4
BUFFER
TP3
Q5
BUFFER
RP1
Y MATRIX
IC3 (4/4)
RV4 SYNC LEVEL
Q6-8
RV5 SAMPLE LEVEL
Q9
VIDEO AMP
IC4 (1/2)
DC AMP
Q10
BUFFER
Q11
SAMPLE HOLD
TP4
FL1
LPF
IC5
Y MOD
RV8 RF LEVEL
RV9 C BALANCE
Q18
18M SEP
TP6
Q13-17
DRIVE AMP
TP5
Q12
PEAK HOLD
IC2
DETECT
RF (Y) OUT
B1
DIAG DATA
A11
MPX FILTER
L
B7
18MHz
A7
B12
DIAG (CD)
A12
B20
R
A20
B18
G
A18
B14
B
A14
TP1
Q1
BUFFER
TP2
Q2
BUFFER
TP3
Q3
BUFFER
RP1, Q4-6
R-Y MATRIX
RP2, Q12-14
B-Y MATRIX
RV1 SYNC LEVEL
RV4 SAMPLE LEVEL
Q7
VIDEO AMP
Q8
BUFFER
IC1 (1/2)
DC AMP
Q9
SAMPLE HOLD
TP4
FL2
9M LPF
IC3
R-Y MOD
RV9 R-Y GAIN
RV10 CARRIER BALANCE
Q15
VIDEO AMP
Q16
BUFFER
TP5
IC1 (2/2)
DC AMP
Q17
SAMPLE HOLD
FL1
9M LPF
IC2
B-Y MOD
RV7 B-Y GAIN
RV8 CARRIER BALANCE
FL3
90° SHIFT
TP6
Q18
PEAK HOLD
Q13-17
DRIVE AMP
RF (CHROMA) OUT
B1
MPX FILTER
M
Q2
BUFFER
B11
SAMPLE
A11
Q11
BUFFER
B9
SYNC
A9
Q10
BUFFER
FL5
36M BPF
Q26
BUFFER
TP8
RV12 CARRIER LEVEL
CP1
36M OSC
RV11 36M FREQ
Q26
BUFFER
IC5
DRIVER 1/2
RV2 CARRIER LEVEL
Q25
BUFFER
FL4
18M BPF
Q24
BUFFER
TP7
RX
A4
A4
+9V IN
IC4
+5V REG
+5V
MD-54
MD-55

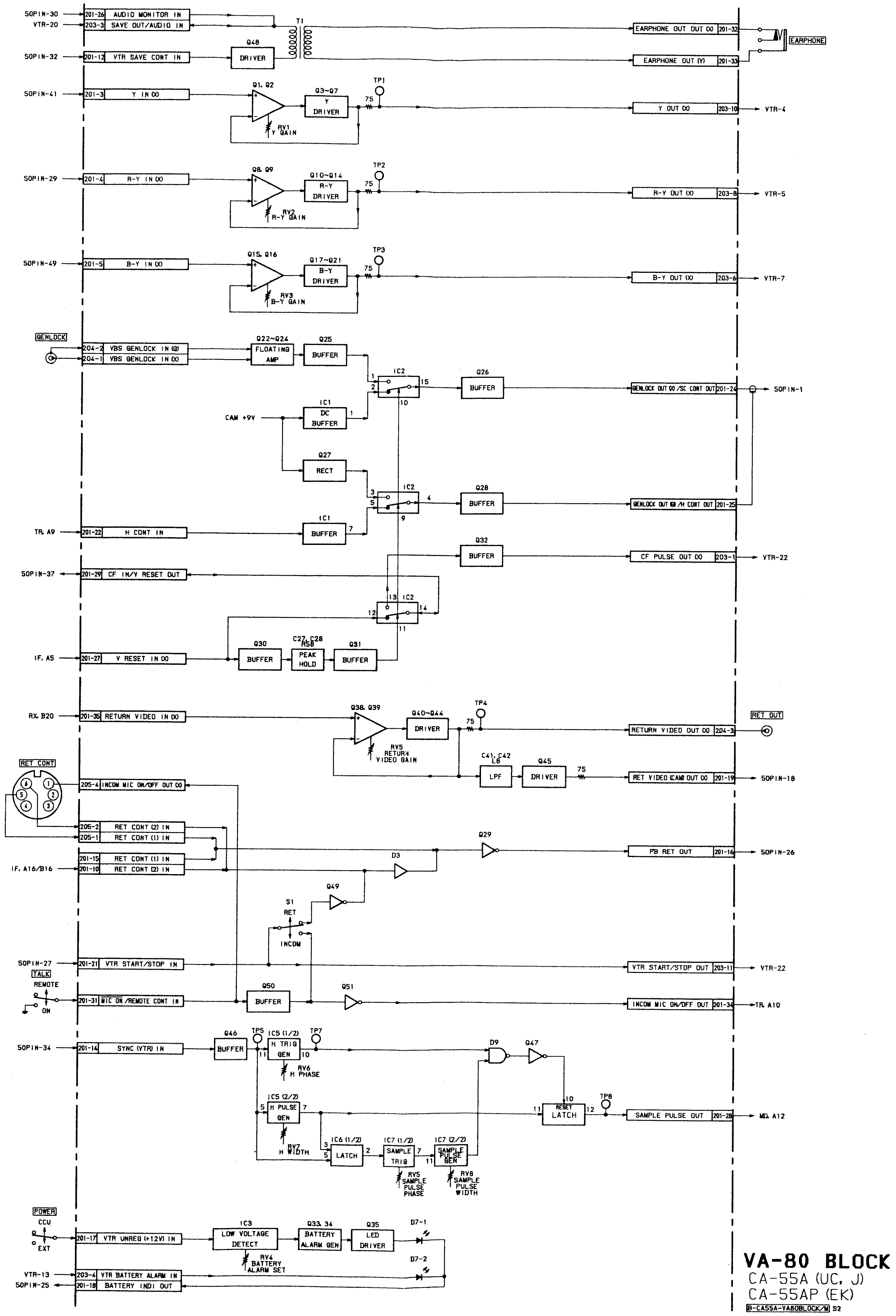
MD-54/55 BLOCK
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-MD54/55BLOCK/M S3

IF-423 BLOCK

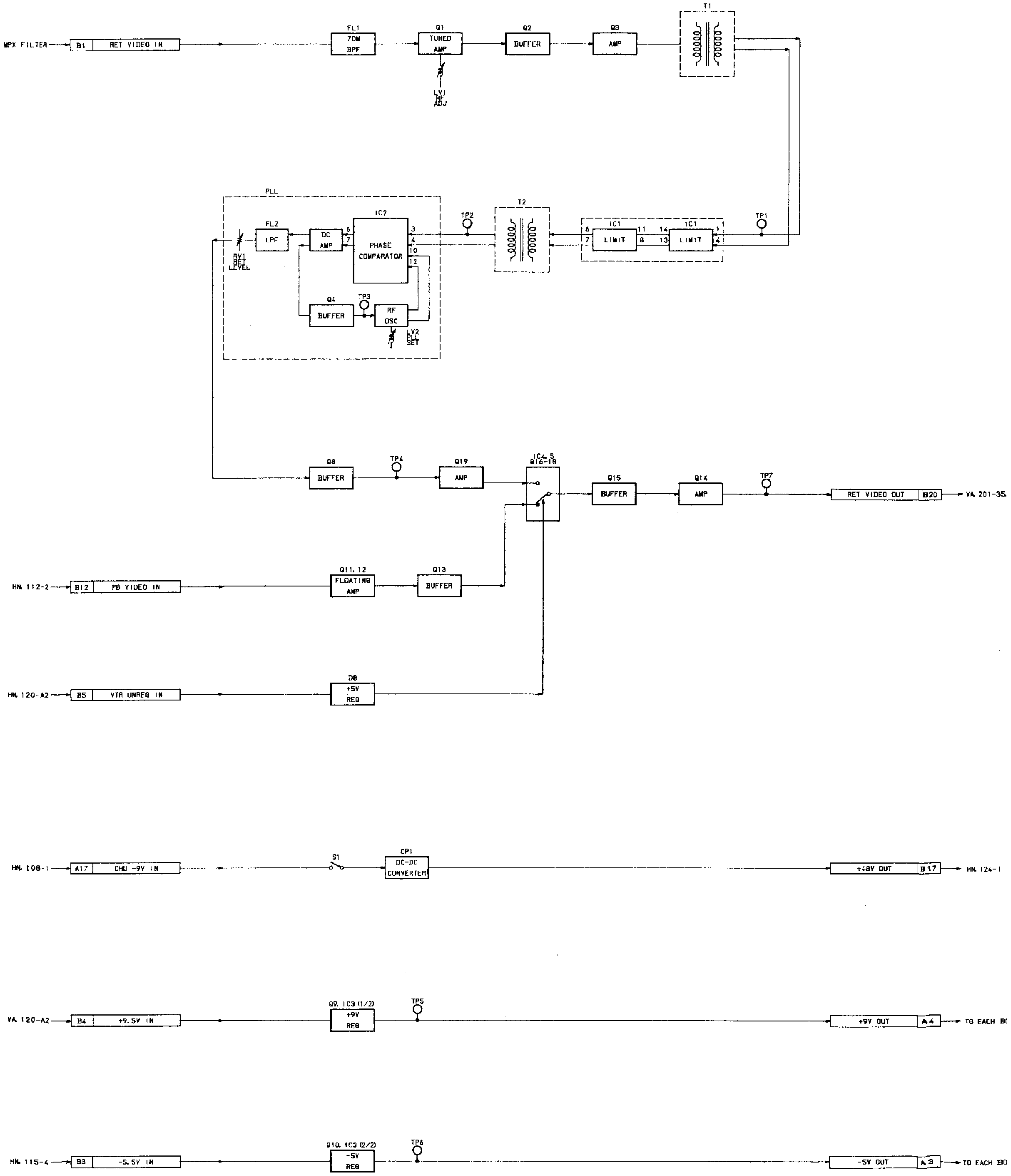

HN. 108-13
B11
SYNC ⊔ IN
Q10
BUFFER
IC4 (1/2)
1/2H
KILLER
<FH>
TP3
IC21, 22
V RESET
PULSE GEN
IC20
IC24
V RESET ⊔ OUT
A5
VA. 201-27
IC2
MICRO
COMPUTER
FTOA1
P71
TXD
RXD
P94
P92
RES
XTAL
EXTAL
P80
P16
P81
P84
P87
FT12
P75
ADR0
ADR15
ADR16
RD
WR
DATA0
DATA7
P94
P70
P10
P11
P12
P93
ADDRESS BUS
ADR15
DATA BUS
IC17
ROM
CE
OE
IC13
RAM
VDD
OE R/W
IC18
+5V
TP7
BACK UP
Q12, 13
+5V
REG
IC23
HN. 110-1
B5
SERIAL DATA I/O
Q5
TP2
Q6
BUFFER
Q7
BUFFER
Q8
Q16
IC14
IC19
CALL
A17
B17
CALL IN
CALL IN
POWER
IC1
RESET
GEN
TP8
X1
20MHz
OSC
VA. 201-10
A16
B16
RET 2 IN
RET 2 IN
HN. 130-3
A3
B3
SERIAL DATA (RM) IN
SERIAL DATA (RM) IN
D6, C37
DATA
DETECT
S2
RM
CCU
IC20
S1-1:NORM/EXTENDER
S1-2:GAIN
S1-3:GAIN
S1-4: AUTO/MAN
S1-5: RET/RET+CAM
S1-6:NTSC/PAL
TP1
IC19
TR. A6
B18
CCU DATA (X) IN
IC3 (1/2)
LPF
Q3
BUFFER
C11, 12
R20
PEAK
HOLD
Q3
BUFFER
IC3 (2/2)
D1
LIMIT
HN. 113-4
B12
REC ALARM IN
Q9
BUFFER
G TALLY IND OUT
B10
HN. 110-3
Q14, 15
BUFFER
SERIAL DATA (RM) OUT
A1
SERIAL DATA (RM) OUT
B1
HN. 130-2
TP6
IC14
IC15 (1/2)
LPF
IC15 (2/2)
INV
AMP
SERIAL DATA (CCU) OUT
B15
TR. A7
CABLE LENGTH 2 OUT
B9
RX. B16
CABLE LENGTH 1 OUT
B7
RX. B18
TRIAX TEST OUT
B6
MD. A10
Q1, Q2
DRIVER
TALLY/REC ALARM OUT
B13
HN. 110-4
IC4 (2/2)
H TRIG
GEN
TP4
IC9 (1/2)
H BLKG
GEN-1
RV1
H BLKG
PHASE
IC9 (2/2)
FH
GEN
RV2
FH WIDTH
IC10
IC10
TP5
IC11
Q0
Q1
Q2
Q5
Q6
DELAY
(DECODER)
Q9
RESET
D4, D5
D3
SP1
PAL
NTSC
IC12 (1/2)
H BLKG
GEN-2
RV4
H BLKG
WIDTH
SP3
NTSC
PAL
IC12 (2/2)
V BLKG
GEN
RV3
V BLKG
WIDTH
SP2
NTSC
PAL
IC10
H/V BLKG
MIX
(NAND)
BLKG ⊔ OUT
B8
MD (Y), A8
Q11
SYNC
INV

IF-423 BLOCK
CA-55A (UC, J)
CA-55AP (EK)
BKP-9551 (UC, J)
BKP-9551P (EK)
B-CA55A-IF423BLOCK/M S3

VA-80 BLOCK

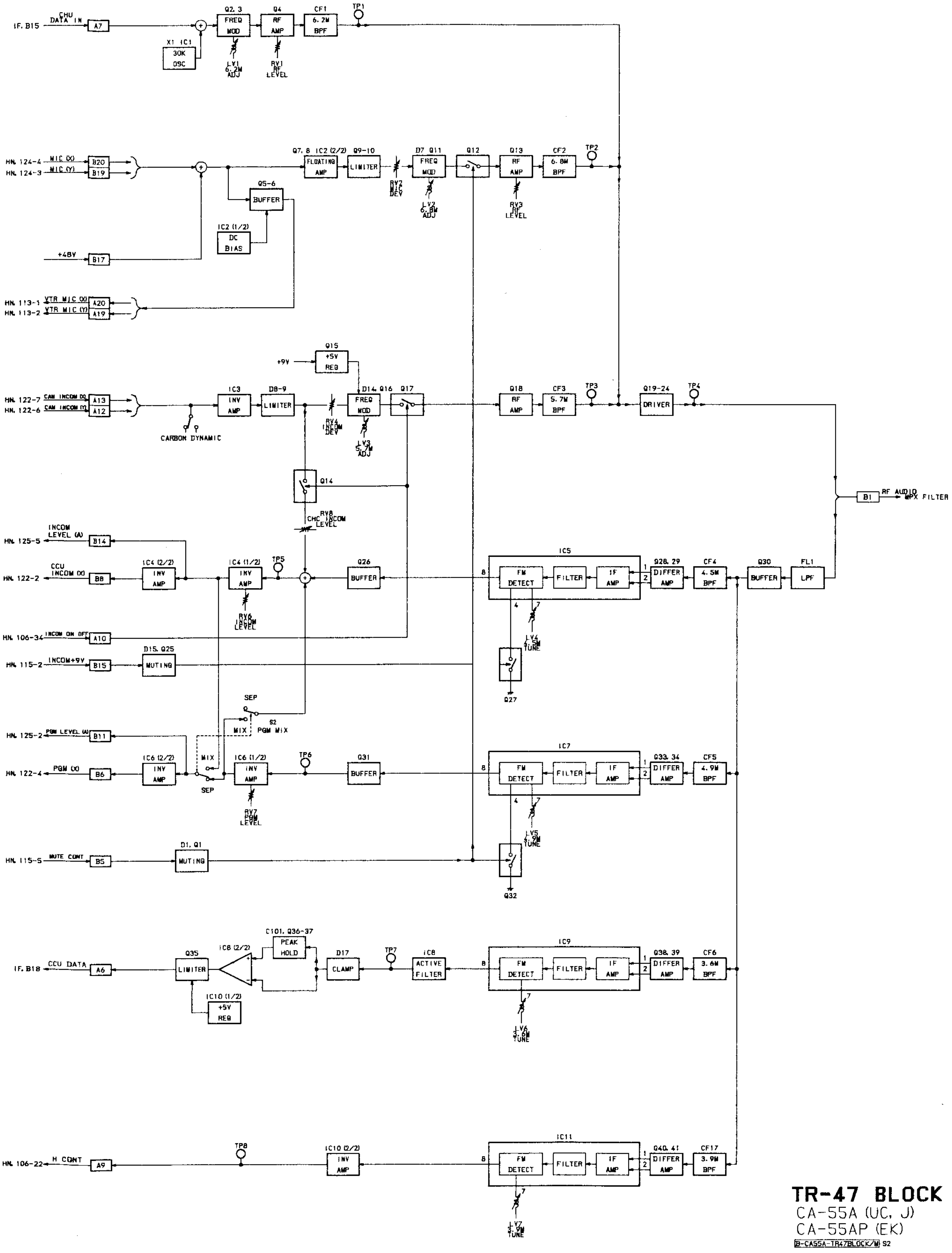

50PIN-30
VTR-20
201-26 AUDIO MONITOR IN
203-3 SAVE OUT/AUDIO IN
T1
50PIN-32
201-12 VTR SAVE CONT IN
Q48
DRIVER
EARPHONE OUT OUT (X) 201-32
EARPHONE OUT (Y) 201-33
EARPHONE
50PIN-41
201-3 Y IN (X)
Q1, Q2
Q3~Q7
Y DRIVER
TP1
75
RV1 Y GAIN
Y OUT (X) 203-10
VTR-4
50PIN-29
201-4 R-Y IN (X)
Q8, Q9
Q10~Q14
R-Y DRIVER
TP2
RV2 R-Y GAIN
R-Y OUT (X) 203-8
VTR-5
50PIN-49
201-5 B-Y IN (X)
Q15, Q16
Q17~Q21
B-Y DRIVER
TP3
RV3 B-Y GAIN
B-Y OUT (X) 203-6
VTR-7
GENLOCK
204-2 VBS GENLOCK IN (G)
204-1 VBS GENLOCK IN (X)
Q22~Q24
FLOATING AMP
Q25
BUFFER
IC2
Q26
BUFFER
GENLOCK OUT (X) /SC CONT OUT 201-24
50PIN-1
CAM +9V
IC1
DC BUFFER
Q27
RECT
Q28
BUFFER
GENLOCK OUT (G) /H CONT OUT 201-25
TR. A9
201-22 H CONT IN
IC1
BUFFER
Q32
BUFFER
CF PULSE OUT (X) 203-1
VTR-22
50PIN-37
201-29 CF IN/V RESET OUT
IF. A5
201-27 V RESET IN (X)
Q30
BUFFER
C27, C28 R58
PEAK HOLD
Q31
BUFFER
RX. B20
201-35 RETURN VIDEO IN (X)
Q38, Q39
Q40~Q44
DRIVER
TP4
RV5 RETURN VIDEO GAIN
RETURN VIDEO OUT (X) 204-3
RET OUT
C41, C42 L8
LPF
Q45
DRIVER
RET VIDEO (CAM) OUT (X) 201-19
50PIN-18
RET CONT
205-4 INCOM MIC ON/OFF OUT (X)
205-2 RET CONT (2) IN
205-1 RET CONT (1) IN
201-15 RET CONT (1) IN
201-10 RET CONT (2) IN
IF. A16/B16
Q29
PB RET OUT 201-16
50PIN-26
D3
Q49
S1
RET
INCOM
50PIN-27
201-21 VTR START/STOP IN
VTR START/STOP OUT 203-11
VTR-22
TALK
REMOTE
ON
201-31 MIC ON /REMOTE CONT IN
Q50
BUFFER
Q51
INCOM MIC ON/OFF OUT 201-34
TR. A10
50PIN-34
201-14 SYNC (VTR) IN
Q46
BUFFER
TP5
IC5 (1/2)
H TRIG GEN
TP7
RV6 H PHASE
D9
Q47
IC5 (2/2)
H PULSE GEN
RV7 H WIDTH
IC6 (1/2)
LATCH
IC7 (1/2)
SAMPLE TRIG
IC7 (2/2)
SAMPLE PULSE GEN
RV5 SAMPLE PULSE PHASE
RV8 SAMPLE PULSE WIDTH
RESET LATCH
TP8
SAMPLE PULSE OUT 201-28
MD. A12
POWER
CCU
EXT
201-17 VTR UNREG (+12V) IN
IC3
LOW VOLTAGE DETECT
RV4 BATTERY ALARM SET
Q33, 34
BATTERY ALARM GEN
Q35
LED DRIVER
D7-1
D7-2
VTR-13
50PIN-25
203-4 VTR BATTERY ALARM IN
201-18 BATTERY INDI OUT
VA-80 BLOCK
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-VA80BLOCK/M S2

RX-6 BLOCK


MPX FILTER
B1
RET VIDEO IN
FL1
70M
BPF
Q1
TUNED
AMP
LV1
RF
ADJ
Q2
BUFFER
Q3
AMP
T1
PLL
FL2
LPF
RV1
RET
LEVEL
DC
AMP
IC2
PHASE
COMPARATOR
6
7
3
4
10
12
Q4
BUFFER
TP3
RF
OSC
LV2
PLL
SET
TP2
T2
IC1
LIMIT
6
7
11
8
14
13
IC1
LIMIT
1
4
TP1
Q8
BUFFER
TP4
Q19
AMP
IC4, 5
Q16-18
Q15
BUFFER
Q14
AMP
TP7
RET VIDEO OUT
B20
VA 201-35
HN 112-2
B12
PB VIDEO IN
Q11, 12
FLOATING
AMP
Q13
BUFFER
HN 120-A2
B5
VTR UNREG IN
D8
+5V
REG
HN 108-1
A17
CHU -9V IN
S1
CP1
DC-DC
CONVERTER
+48V OUT
B17
HN 124-1
VA 120-A2
B4
+9.5V IN
Q9, IC3 (1/2)
+9V
REG
TP5
+9V OUT
A4
TO EACH B
HN 115-4
B3
-5.5V IN
Q10, IC3 (2/2)
-5V
REG
TP6
-5V OUT
A3
TO EACH BO

RX-6 BLOCK
CA-55A (UC, J
CA-55AP (EK)
B-CA55A-RX6BLOCK/M S2

TR-47 BLOCK


IF. B15
CHU DATA IN
A7
X1 IC1
30K OSC
Q2, 3
FREQ MOD
LV1 6.2M ADJ
Q4
RF AMP
RV1 RF LEVEL
CF1
6.2M BPF
TP1
HN. 124-4
HN. 124-3
MIC (X)
MIC (Y)
B20
B19
+48V
B17
Q5-6
BUFFER
IC2 (1/2)
DC BIAS
HN. 113-1
HN. 113-2
VTR MIC (X)
VTR MIC (Y)
A20
A19
Q7, 8 IC2 (2/2)
FLOATING AMP
Q9-10
LIMITER
RV2 MIC DEV
D7 Q11
FREQ MOD
LV2 6.8M ADJ
Q12
Q13
RF AMP
RV3 RF LEVEL
CF2
6.8M BPF
TP2
Q15
+9V
+5V REG
HN. 122-7
HN. 122-6
CAM INCOM (X)
CAM INCOM (Y)
A13
A12
CARBON DYNAMIC
IC3
INV AMP
D8-9
LIMITER
RV4 INCOM DEV
D14, Q16
FREQ MOD
LV3 5.7M ADJ
Q17
Q14
RV8 CHC INCOM LEVEL
Q18
RF AMP
CF3
5.7M BPF
TP3
Q19-24
DRIVER
TP4
B1
RF AUDIO MPX FILTER
HN. 125-5
INCOM LEVEL (A)
B14
HN. 122-2
CCU INCOM (X)
B8
IC4 (2/2)
INV AMP
IC4 (1/2)
INV AMP
RV6 INCOM LEVEL
TP5
Q26
BUFFER
HN. 106-34
INCOM ON OFF
A10
HN. 115-2
INCOM+9V
B15
D15, Q25
MUTING
SEP
MIX
S2
PGM MIX
HN. 125-2
PGM LEVEL (A)
B11
HN. 122-4
PGM (X)
B6
IC6 (2/2)
INV AMP
MIX
SEP
IC6 (1/2)
INV AMP
RV7 PGM LEVEL
TP6
Q31
BUFFER
IC5
8
FM DETECT
FILTER
IF AMP
1
2
4
7
LV4 4.5M TUNE
Q27
Q28, 29
DIFFER AMP
CF4
4.5M BPF
Q30
BUFFER
FL1
LPF
IC7
8
FM DETECT
FILTER
IF AMP
1
2
4
7
LV5 4.9M TUNE
Q32
Q33, 34
DIFFER AMP
CF5
4.9M BPF
HN. 115-5
MUTE CONT
B5
D1, Q1
MUTING
IF. B18
CCU DATA
A6
Q35
LIMITER
IC8 (2/2)
C101, Q36-37
PEAK HOLD
IC10 (1/2)
+5V REG
D17
CLAMP
TP7
IC8
ACTIVE FILTER
IC9
8
FM DETECT
FILTER
IF AMP
1
2
7
LV6 3.6M TUNE
Q38, 39
DIFFER AMP
CF6
3.6M BPF
HN. 106-22
H CONT
A9
TP8
IC10 (2/2)
INV AMP
IC11
8
FM DETECT
FILTER
IF AMP
1
2
7
LV7 3.9M TUNE
Q40, 41
DIFFER AMP
CF17
3.9M BPF

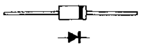
TR-47 BLOCK
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-TR47BLOCK/M S2

SECTION B
SEMICONDUCTOR PIN ASSIGNMENTS

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

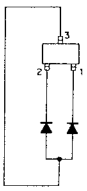
TYPE	PAGE
1S1555	B-2
1S2835	B-2
1S2837	B-2
1SS123	B-2
1SS97	B-2
1SZ46A	B-2
1SZ47A	B-2
1T33	B-2
2SA1226	B-2
2SA1330	B-2
2SA1385	B-2
2SA1462	B-2
2SA812	B-2
2SB733	B-2
2SC1009A	B-2
2SC1623	B-2
2SC2026	B-2
2SC2238B	B-2
2SC2440	B-2
2SC2668	B-2
2SC2714	B-2
2SC2714Y	B-2
2SC2757	B-2
2SC2758	B-2
2SC3115	B-2
2SC3360	B-2
2SC945	B-2
2SD1033	B-2
2SD773	B-2
2SK94	B-2
3SK163	B-2
74F175PC	B-3
CA3102E	B-3
DTC114EK	B-2
ERA82-004	B-2
ERB81-004	B-2
ESAC82-004	B-2
FC53M	B-2
GM-3	B-2
HD6475328F10	B-4
HSM88AS	B-2
MC14040BF	B-3
MC14049UBF	B-3
MC14053BF	B-3
MC14073BF	B-5
MC74HC164F	B-5
MS62256CLL	B-5
NJM1496M	B-5
NJM4556M-A	B-5
NJM4560M	B-5
NJM78L05A	B-6
NJM78H09FA	B-6
RD ? ?EB ?	B-2
RD ? ?EL ?	B-2
RD ? ?FB ?	B-2
SN74HC00ANS	B-6
TA7303P	B-6
TA78L005AP	B-6
TC40H163F	B-6
TC4538BF	B-6
TC4S30F	B-6
TC4SU69F	B-7
TC504013BF	B-7
TC7S08F	B-7
TL062CPS	B-7
TL082CPS	B-7
TL1451ACNS	B-7
TL7700CPS	B-7
TMS27C512-15JL	B-8
uPC393G2	B-8
XN6435	B-2

DIODE, TRANSISTOR



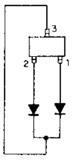
1S1555

TOP VIEW (SCALE 4/1)



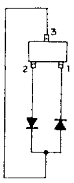
1S2835

TOP VIEW (SCALE 4/1)

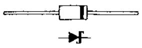


1S2837

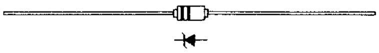
TOP VIEW (SCALE 4/1)



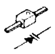
1SS123
HSM88AS



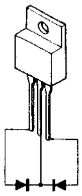
1SS97
ERA82-004
ERB81-004



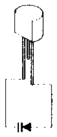
1SZ46A
1SZ47A



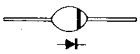
1T33



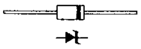
ESAC82-004



FC53M

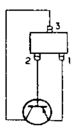


GM-3

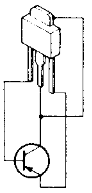


RD ? ?EB ?
RD ? ?EL ?
RD ? ?FB ?

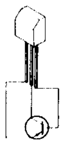
TOP VIEW (SCALE 4/1)



2SA1226
2SA1330
2SA1462
2SA812

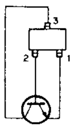


2SA1385

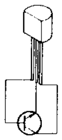


2SB733

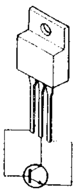
TOP VIEW (SCALE 4/1)



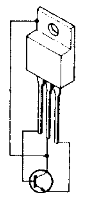
2SC1009A
2SC1623
2SC2714
2SC2714Y
2SC2757
2SC2758
2SC3115
2SC3360



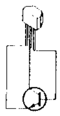
2SC2026



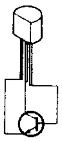
2SC2238B



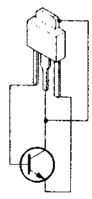
2SC2440



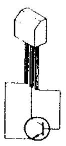
2SC2668



2SC945

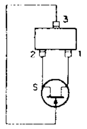


2SD1033



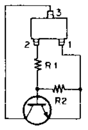
2SD773

TOP VIEW (SCALE 4/1)



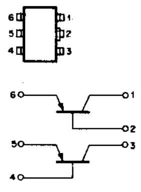
2SK94

TOP VIEW (SCALE 4/1)



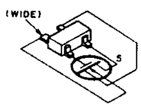
DTC114EK
(R1 = 10K,
R2 = 10K)

(SCALE 6/1)
TOP VIEW



XN6435

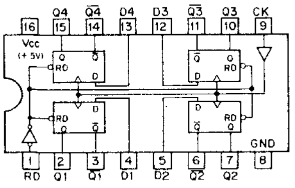
(SCALE 3/1)

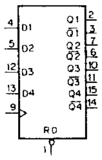


3SK163

74F175PC (FSC)

TTL D-TYPE FLIP-FLOP WITH CLEAR
– TOP VIEW –


Q4
$\overline{Q4}$
D4
D3
$\overline{Q3}$
Q3
CK
Vcc
(+5V)
GND
RD
Q1
$\overline{Q1}$
D1
D2
$\overline{Q2}$
Q2

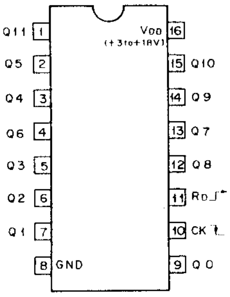

D1
D2
D3
D4
Q1
$\overline{Q1}$
Q2
$\overline{Q2}$
Q3
$\overline{Q3}$
Q4
$\overline{Q4}$
RD

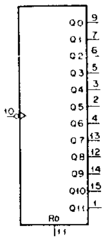
RD	CK	D	Q	$\overline{Q}$
0	X	X	0	1
1	↑	1	1	0
1	↑	0	0	1
1	0	X	Q_0	$\overline{Q}_0$

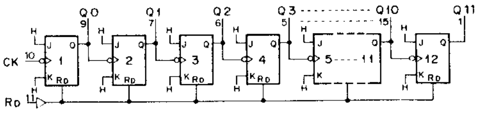
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MC14040BF (MOTOROLA) FLAT PACKAGE

C-MOS 12-STAGE RIPPLE CARRY BINARY COUNTER/DRIVER
– TOP VIEW –


Q11
Q5
Q4
Q6
Q3
Q2
Q1
GND
VDD
(+3 to +18V)
Q10
Q9
Q7
Q8
RD
CK
Q0


Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
RD


Q0
Q1
Q2
Q3
Q10
Q11
CK
RD
H
J
K
Q
1
2
3
4
5 ----- 11
12

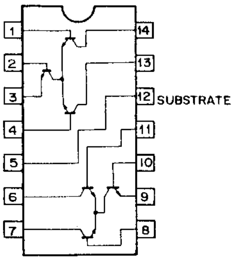
COUNT	Q11	Q10	Q9	Q8	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	0
3	0	0	0	0	0	0	0	0	0	0	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
4095	1	1	1	1	1	1	1	1	1	1	1	1

RD	Q11 ········ Q0
1	ALL LOW
0	COUNT

0 ; LOW LEVEL
1 ; HIGH LEVEL

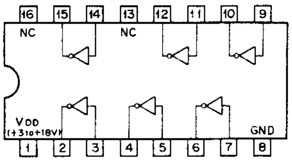
CA3102E (RCA)

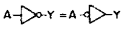
HIGH FREQ. DIFFERNTIAL AMPLIFIER
– TOP VIEW –



MC14049UBF (MOTOROLA)

C-MOS INVERTING TYPE BUFFER/CONVERTER
– TOP VIEW –


NC
NC
VDD
(+3 to +18V)
GND



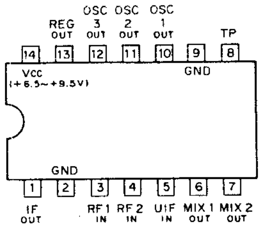
Y = $\overline{A}$

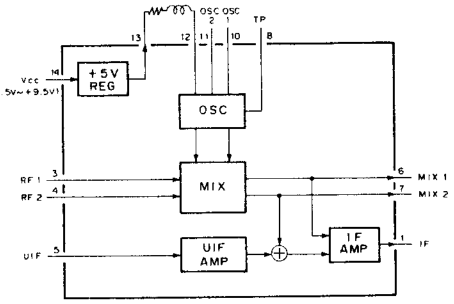
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

CXA1165M (SONY) FLAT PACKAGE

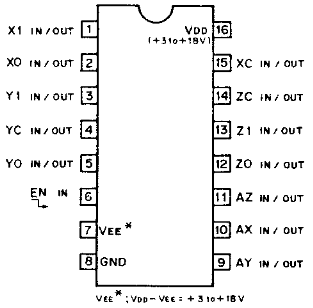
CATV VHF TUNER
– TOP VIEW –


OSC 3 OUT
OSC 2 OUT
OSC 1 OUT
REG OUT
TP
VCC
(+6.5~+9.5V)
GND
GND
IF OUT
RF 1 IN
RF 2 IN
UIF IN
MIX 1 OUT
MIX 2 OUT

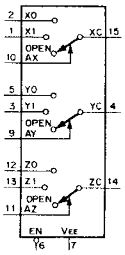

OSC OSC 2 1
TP
Vcc
(+6.5V~+9.5V)
+5V REG
OSC
MIX
RF 1
RF 2
UIF
UIF AMP
IF AMP
MIX 1
MIX 2
IF

MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –


X1 IN / OUT
X0 IN / OUT
Y1 IN / OUT
YC IN / OUT
Y0 IN / OUT
EN IN
VEE*
GND
VDD
(+3 to +18V)
XC IN / OUT
ZC IN / OUT
Z1 IN / OUT
Z0 IN / OUT
AZ IN / OUT
AX IN / OUT
AY IN / OUT

VEE* ; VDD − VEE = +3 to +18V


X0
X1
OPEN
AX
XC
Y0
Y1
OPEN
AY
YC
Z0
Z1
OPEN
AZ
ZC
EN
VEE

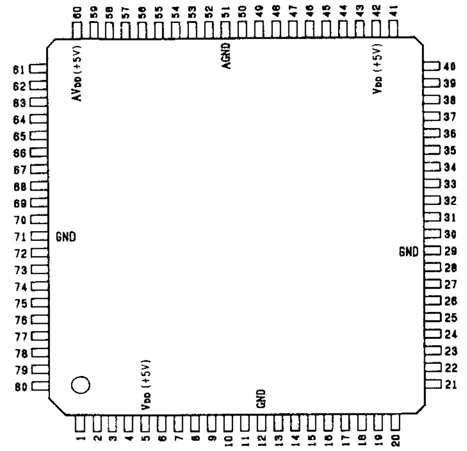
CONT. INPUTS		ON CHANNEL
EN	A (X, Y, Z,)	
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

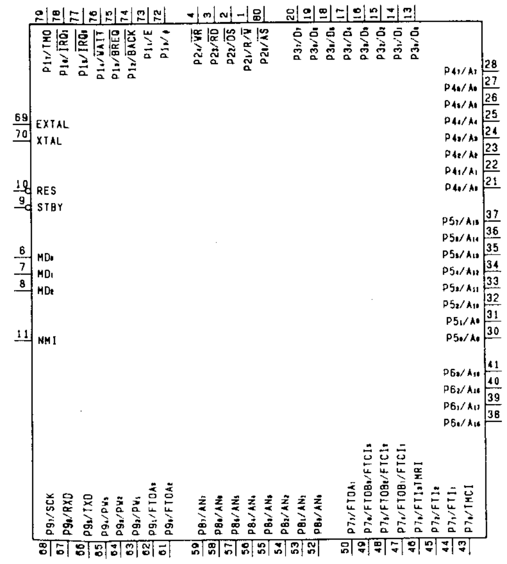
HD6475328F10 (HITACHI)

C-MOS 16-BIT MICROPROCESSOR

– TOP VIEW –


AVDD (+5V)
AGND
VDD (+5V)
GND
GND
VDD (+5V)
GND
1 … 80

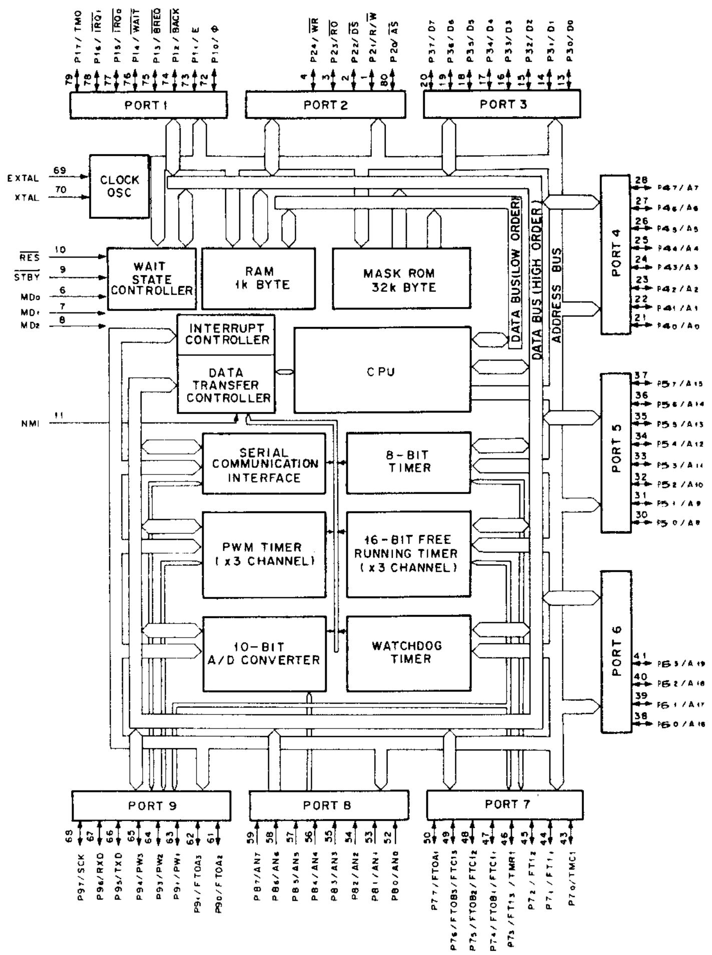
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{DS}$	29	–	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{RD}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{WR}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	–	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	–	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{STBY}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{RES}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	–	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	–	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	–	Vss
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/Φ
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{BACK}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{BREQ}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{WAIT}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{IRQ0}$
24	I/O	P43/A3	51	–	AGND	78	I/O	P12/$\overline{IRQ1}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{AS}$
27	I/O	P46/A6	54	I/O	P82/AN2			


EXTAL
XTAL
RES
STBY
MD0
MD1
MD2
NMI

INPUT
AN0 – AN7 ; ANALOG INPUT
BREQ ; BUS REQUEST
EXTAL ; CONNECTED TO CRYSTAL OSCILLATOR.
FTCI1 – FTCI3 ; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1 – FTI3 ; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1 ; INTERRUPTION REQUEST 0 AND 1
MD0 – MD2 ; MODE SETTING
NMI ; NON MASKABLE INTERRUPTION
P80 – P87 ; PORT 8
RES ; RESET
RXD ; RECEIVE DATA
SYBY ; STANDBY
TMCI ; 8-BIT TIMER CLOCK INPUT
TMRI ; 8-BIT TIMER COUNTER RESET INPUT
WAIT ; WAIT
XTAL ; CONNECTED TO CRYSTAL OSCILLATOR.

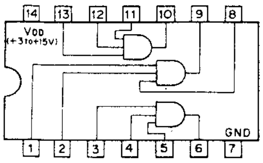
OUTPUT
A0 – A19 ; ADDRESS BUS
AS ; ADDRESS STROBE
BACK ; BUS REQUEST ACKNOWLEDGE
DS ; DATA STROBE
E ; ENABLE CLOCK
FTOA1 – FTOA3 ; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1 – FTOB3 ; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1 – PW3 ; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W ; READ/WRITE
RD ; READ
TMO ; 8-BIT TIMER OUTPUT
TXD ; SEND DATA
WR ; WRITE
ϕ ; SYSTEM CLOCK

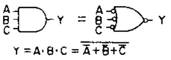
INPUT/OUTPUT
D0 – D7 ; DATA BUS
P10 – P17 ; PORT 1
P20 – P24 ; PORT 2
P30 – P37 ; PORT 3
P40 – P47 ; PORT 4
P50 – P57 ; PORT 5
P60 – P63 ; PORT 6
P70 – P77 ; PORT 7
P90 – P97 ; PORT 9
SCK ; SERIAL CLOCK INPUT/OUTPUT


PORT 1
PORT 2
PORT 3
EXTAL
XTAL
CLOCK OSC
RES
STBY
MD0
MD1
MD2
WAIT STATE CONTROLLER
RAM 1k BYTE
MASK ROM 32k BYTE
INTERRUPT CONTROLLER
DATA TRANSFER CONTROLLER
CPU
NMI
SERIAL COMMUNICATION INTERFACE
8-BIT TIMER
PWM TIMER (x3 CHANNEL)
16-BIT FREE RUNNING TIMER (x3 CHANNEL)
10-BIT A/D CONVERTER
WATCHDOG TIMER
DATA BUS (LOW ORDER)
DATA BUS (HIGH ORDER)
ADDRESS BUS
PORT 4
PORT 5
PORT 6
PORT 9
PORT 8
PORT 7

MC14073BF (MOTOROLA) FLAT PACKAGE

C-MOS 3-INPUT POSITIVE AND GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3to+15V)
GND
1
2
3
4
5
6
7



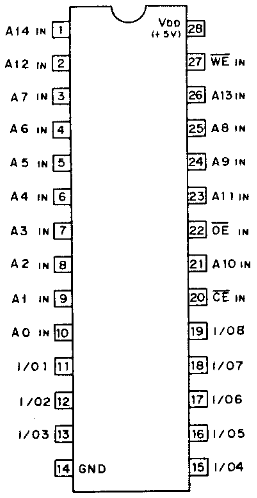
$Y = A \cdot B \cdot C = \overline{\overline{A}+\overline{B}+\overline{C}}$

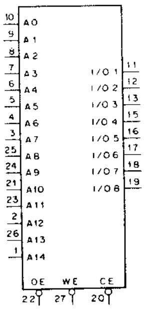
A	B	C	Y
X	X	0	0
X	0	X	0
0	X	X	0
1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

MS62256CLL (MOSEL) FLAT PACKAGE

C-MOS 256K (32768×8)-BIT STATIC RAM
- TOP VIEW -

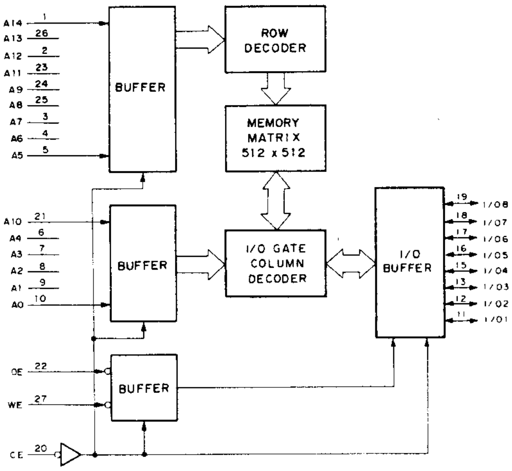

A14 IN 1
A12 IN 2
A7 IN 3
A6 IN 4
A5 IN 5
A4 IN 6
A3 IN 7
A2 IN 8
A1 IN 9
A0 IN 10
I/O1 11
I/O2 12
I/O3 13
14 GND
VDD (+5V) 28
27 WE IN
26 A13 IN
25 A8 IN
24 A9 IN
23 A11 IN
22 OE IN
21 A10 IN
20 CE IN
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
26 A13
1 A14
I/O1 11
I/O2 12
I/O3 13
I/O4 15
I/O5 16
I/O6 17
I/O7 18
I/O8 19
OE 22
WE 27
CE 20

A0 – A14 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
I/O1 – I/O8 : DATA INPUTS/OUTPUTS
OE : OUTPUT ENABLE INPUT
WE : WRITE ENABLE INPUT

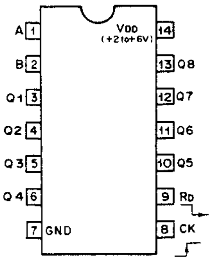
CE	OE	WE	MODE	I/O TERMINAL
1	x	x	NOT SELECT	HIGH IMPEDANCE
0	1	1	OUTPUT DISABLE	HIGH IMPEDANCE
0	0	1	READ	OUTPUT DATA
0	x	0	WRITE	INPUT DATA

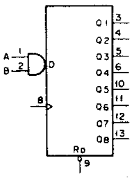
0 : LOW LEVEL
1 : HIGH LEVEL
x : DON'T CARE


A14 1
A13 26
A12 2
A11 23
A9 24
A8 25
A7 3
A6 4
A5 5
BUFFER
ROW DECODER
MEMORY MATRIX 512 x 512
A10 21
A4 6
A3 7
A2 8
A1 9
A0 10
BUFFER
I/O GATE COLUMN DECODER
I/O BUFFER
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4
13 I/O3
12 I/O2
11 I/O1
OE 22
WE 27
BUFFER
CE 20

MC74HC164F (MOTOROLA) FLAT PACKAGE

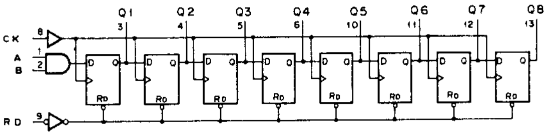
C-MOS 8BIT SERIAL-IN/PARALLEL-OUT SHIFT REGISTER
- TOP VIEW -


A 1
B 2
Q1 3
Q2 4
Q3 5
Q4 6
7 GND
VDD (+2to+6V) 14
13 Q8
12 Q7
11 Q6
10 Q5
9 RD
8 CK


A 1
B 2
D
8
RD 9
Q1 3
Q2 4
Q3 5
Q4 6
Q5 10
Q6 11
Q7 12
Q8 13

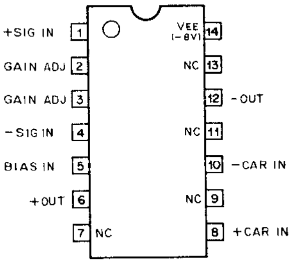
INPUTS				OUTPUTS			
RD	CK	A	B	Q1	Q2	----	Q8
0	X	X	X	0	0	0	0
1	0	X	X	Q1o	Q2o	----	Q8o
1	↑	1	1	1	Q1n	----	Q7n
1	↑	0	X	0	Q1n	----	Q7n
1	↑	X	0	0	Q1n	----	Q7n

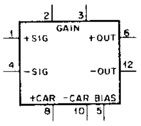
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE


CK 8
A 1
B 2
RD 9
Q1 3
Q2 4
Q3 5
Q4 6
Q5 10
Q6 11
Q7 12
Q8 13
D Q
RD

NJM1496M (JRC) FLAT PACKAGE

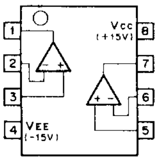
BALANCED MODULATOR/DEMODULATOR
- TOP VIEW -


+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
-SIG IN 4
BIAS IN 5
+OUT 6
7 NC
VEE (-8V) 14
NC 13
12 -OUT
NC 11
10 -CAR IN
NC 9
8 +CAR IN


2
3
GAIN
1 +SIG
+OUT 6
4 -SIG
-OUT 12
+CAR
-CAR
BIAS
8
10
5

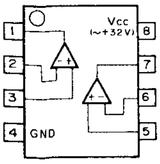
NJM4560M (JRC) FLAT PACKAGE

OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4
VEE (-15V)
Vcc (+15V) 8
7
6
5

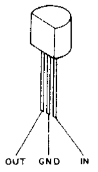
NJM4556M-A (JRC) FLAT PACKAGE

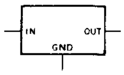
OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4 GND
Vcc (~+32V) 8
7
6
5

NJM78L05A (JRC) +5 V (100 mA)
TA78L0054AP (TOSHIBA) +5 V (150 mA)

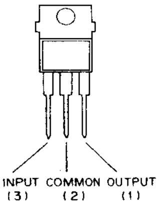
POSITIVE VOLTAGE REGULATOR

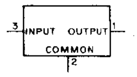




NJM78M09FA (JRC) +9 V

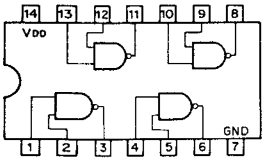
POSITIVE VOLTAGE REGULATOR
- FRONT VIEW -

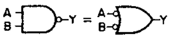

INPUT (3)
COMMON (2)
OUTPUT (1)


3
INPUT
OUTPUT
1
COMMON
2

SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES
- TOP VIEW -


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

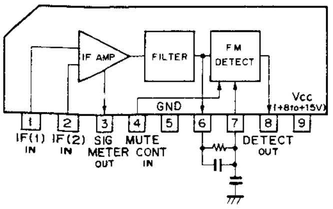
0; LOW LEVEL
1; HIGH LEVEL

NOTE :

TYPE	VDD
TC74AC00 TYPE	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

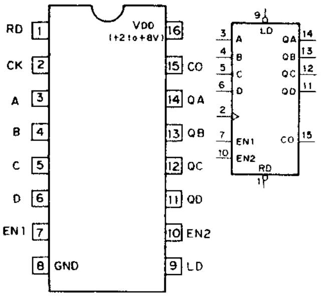
TA7303P (TOSHIBA)

FM IF AMPLIFIER/DETECTOR
- SIDE VIEW -


IF AMP
FILTER
FM DETECT
GND
Vcc
(+8to+15V)
1
2
3
4
5
6
7
8
9
IF(1) IN
IF(2) IN
SIG METER OUT
MUTE CONT IN
DETECT OUT

TC40H163F (TOSHIBA) FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
- TOP VIEW -


RD 1
CK 2
A 3
B 4
C 5
D 6
EN1 7
8 GND
VDD (+2 to +8V) 16
15 CO
14 QA
13 QB
12 QC
11 QD
10 EN2
9 LD
9
LD
3 A
4 B
5 C
6 D
2
7 EN1
10 EN2
RD
1
QA 14
QB 13
QC 12
QD 11
CO 15

MODE SELECTION

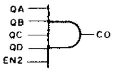
CONT. INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
⋮	⋮	⋮	⋮	⋮
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

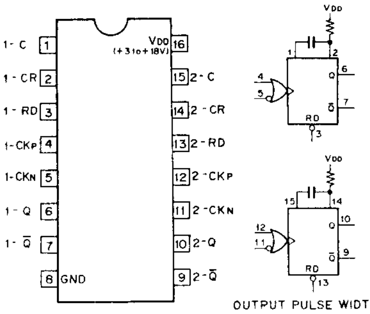
CARRY OUTPUT "CO"


QA
QB
QC
QD
EN2
CO

CO GOES HIGH WHEN EN2 IS HIGH AND COUNT IS "15."

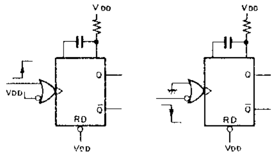
TC4538BF (TOSHIBA) FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
- TOP VIEW -

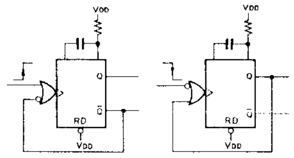

1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD (+3 to +18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄
VDD
1
2
4
5
6
7
Q
Q̄
RD
3
VDD
15
14
12
11
10
9
RD
13

OUTPUT PULSE WIDTH≒CR

RETRIGGERABLE M.M.V

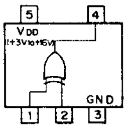

VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

NON-RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

TC4S30F (TOSHIBA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE
- TOP VIEW -


5
4
VDD
(+3V to +15V)
GND
1
2
3

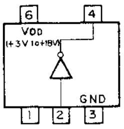
$Y = \overline{A} \cdot B + A \cdot \overline{B}$

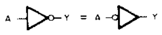
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

TC4SU69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER
- TOP VIEW -


6
4
VDD
(+3V to+18V)
GND
1
2
3



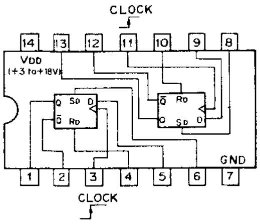
$Y = \bar{A}$

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC504013BF (TOSHIBA) FLAT PACKAGE

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
- TOP VIEW -


CLOCK
14
13
12
11
10
9
8
VDD
(+3 to+18V)
Q
SD
D
Q̄
RD
Q̄
RD
Q
SD
D
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP FLOP

SD	RD	Q	$\bar{Q}$
0	0	Qn	$\bar{Q}$n
0	1	0	1
1	0	1	0
1	1	0	1

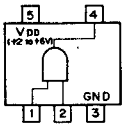
D-TYPE FLIP FLOP

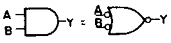
CKn	CKn+1
D	Q
0	0
1	1

CLOCK CK; ⌐
CKn ; BEFORE CLOCK
CKn+1; AFTER CLOCK
0 ; LOW LEVEL
1 ; HIGH LEVEL

TC7S08F (TOSHIBA) FLAT PACKAGE

C-MOS 2IN-PUT AND GATE
- TOP VIEW -


5
4
VDD
(+2 to +6V)
GND
1
2
3



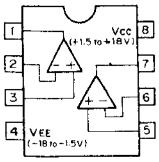
$Y = A \cdot B = \overline{\bar{A} + \bar{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

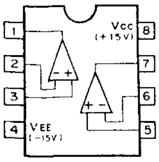
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(JFET INPUT)
- TOP VIEW -


1
2
3
4
VEE
(−18 to −1.5V)
8
7
6
5
Vcc
(+1.5 to +18V)

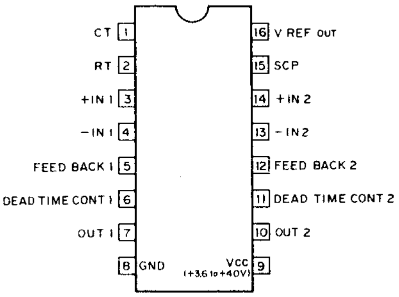
TL082CPS (TI) FLAT PACKAGE

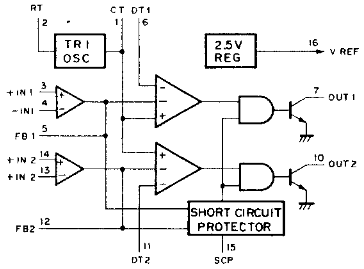
OPERATIONAL AMPLIFIER
(J FET-INPUT)
- TOP VIEW -


1
2
3
4
VEE
(−15V)
8
7
6
5
Vcc
(+15V)

TL1451ACNS (TI) FLAT PACKAGE

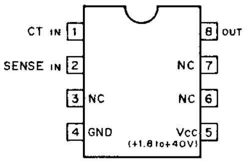
DUAL PWM POWER CONTROLLER
- TOP VIEW -

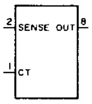

CT 1
RT 2
+IN 1 3
−IN 1 4
FEED BACK 1 5
DEAD TIME CONT 1 6
OUT 1 7
8 GND
16 V REF OUT
15 SCP
14 +IN 2
13 −IN 2
12 FEED BACK 2
11 DEAD TIME CONT 2
10 OUT 2
9 Vcc (+3.6 to +40V)

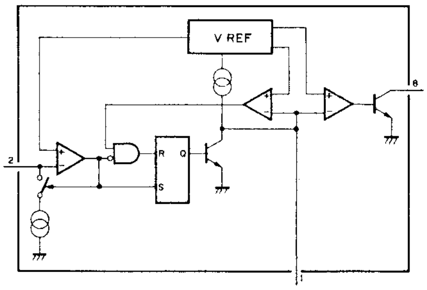

RT
2
CT
1
DT1
6
TRI OSC
2.5V REG
16
V REF
+IN 1
3
−IN1
4
FB 1
5
+IN 2
14
+IN 2
13
FB2
12
7
OUT 1
10
OUT 2
SHORT CIRCUIT PROTECTOR
11
DT2
15
SCP

TL7700CPS (TI) FLAT PACKAGE

VARIABLE SUPPLY VOLTAGE SUPERVISOR
- TOP VIEW -

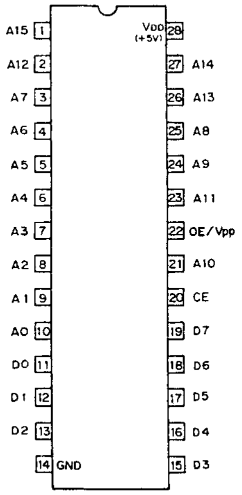

CT IN 1
SENSE IN 2
3 NC
4 GND
8 OUT
NC 7
NC 6
Vcc 5
(+1.8 to+40V)

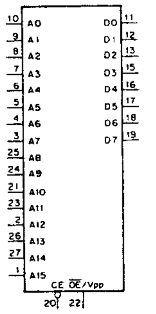

2
SENSE
OUT
8
1
CT


V REF
8
2
R
Q
S
1

TMS27C512-15JL (TI)

C-MOS 512K (65,536x8=524,288)-BIT ERASABLE PROM
- TOP VIEW -

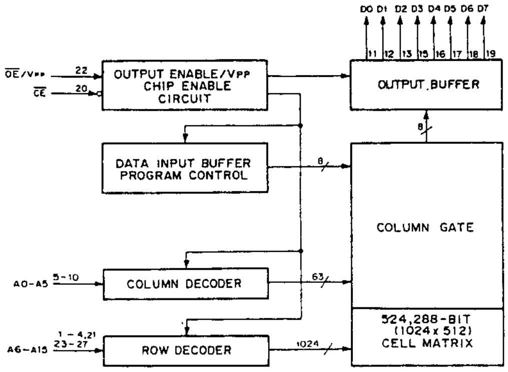

A15 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
D0 11
D1 12
D2 13
14 GND
VDD (+5V) 28
27 A14
26 A13
25 A8
24 A9
23 A11
22 OE/Vpp
21 A10
20 CE
19 D7
18 D6
17 D5
16 D4
15 D3


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
26 A13
27 A14
1 A15
D0 11
D1 12
D2 13
D3 15
D4 16
D5 17
D6 18
D7 19
CE OE/Vpp
20 22

A0 – A15 : ADDRESS INPUTS
CE : CHIP ENABLE INPUT
D0 – D7 : DATA OUTPUTS
OE : OUTPUT ENABLE INPUT
Vpp : PROGRAM POWER SUPPLY

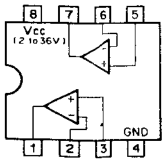
An	CE	$\overline{OE}$/V_{PP}	V_{DD}	Dn	FUNCTION
A_{IN}	0	0	+5V	D_{OUT}	READ
A_{IN}	0	1	+5V	HI-Z	OUTPUT DISABLE
X	1	X	+5V	HI-Z	STANDBY
A_{IN}	0	+12.5V	+6V	D_{IN}	PGM
A_{IN}	0	0	+6V	D_{OUT}	PGM VERIFY
X	1	+12.5V	+6V	HI-Z	PGM INH

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE


D0 D1 D2 D3 D4 D5 D6 D7
11 12 13 15 16 17 18 19
$\overline{OE}$/Vpp
22
$\overline{CE}$
20
OUTPUT ENABLE/Vpp CHIP ENABLE CIRCUIT
OUTPUT BUFFER
8
DATA INPUT BUFFER PROGRAM CONTROL
8
COLUMN GATE
A0-A5
5-10
COLUMN DECODER
63
1-4,21 23-27
A6-A15
ROW DECODER
1024
524,288-BIT (1024x512) CELL MATRIX

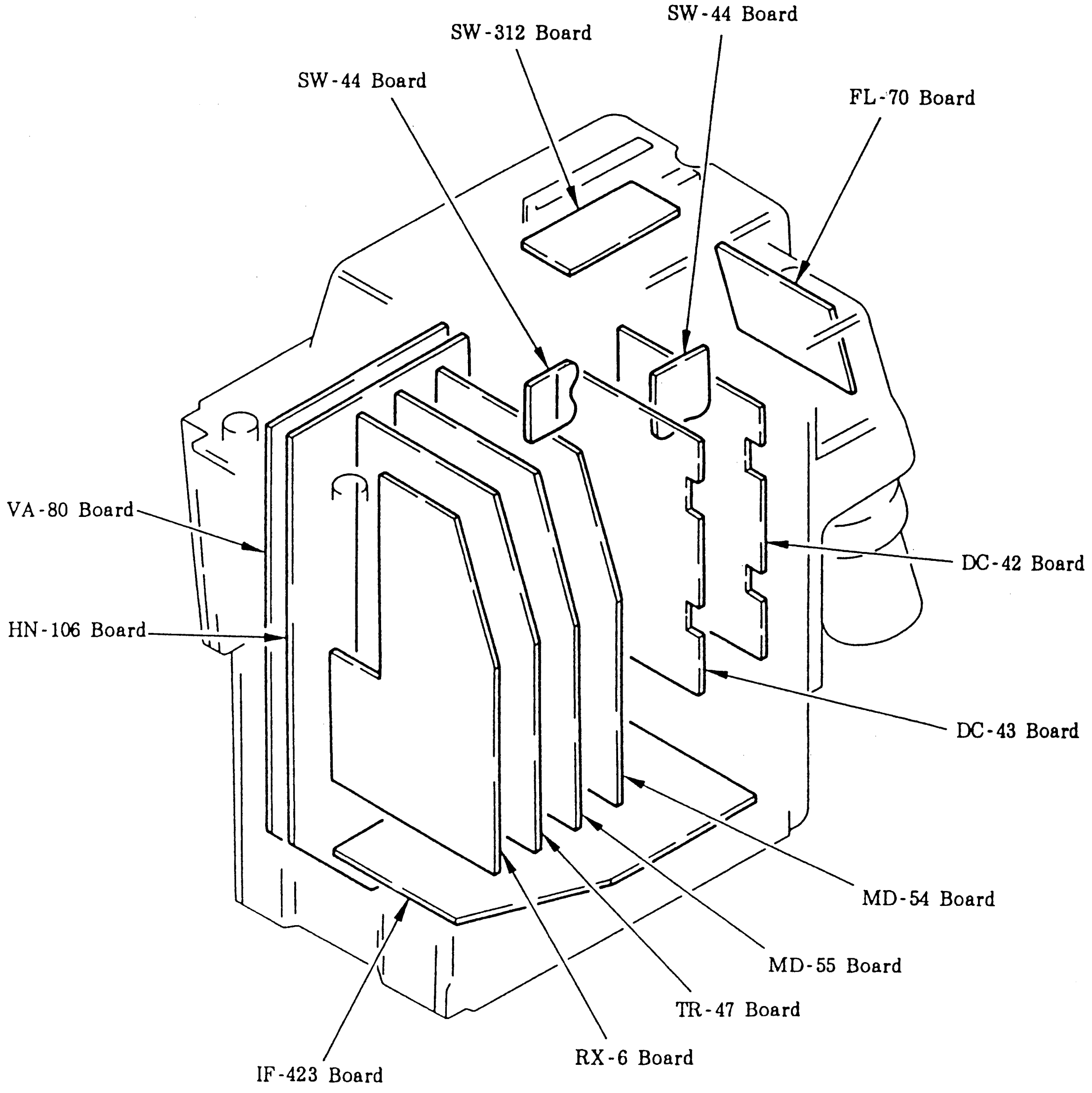
uPC393G2 (NEC) FLAT PACKAGE

VOLTAGE COMPARATOR
- TOP VIEW -


8
7
6
5
Vcc
(2 to 36V)
GND
1
2
3
4

SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

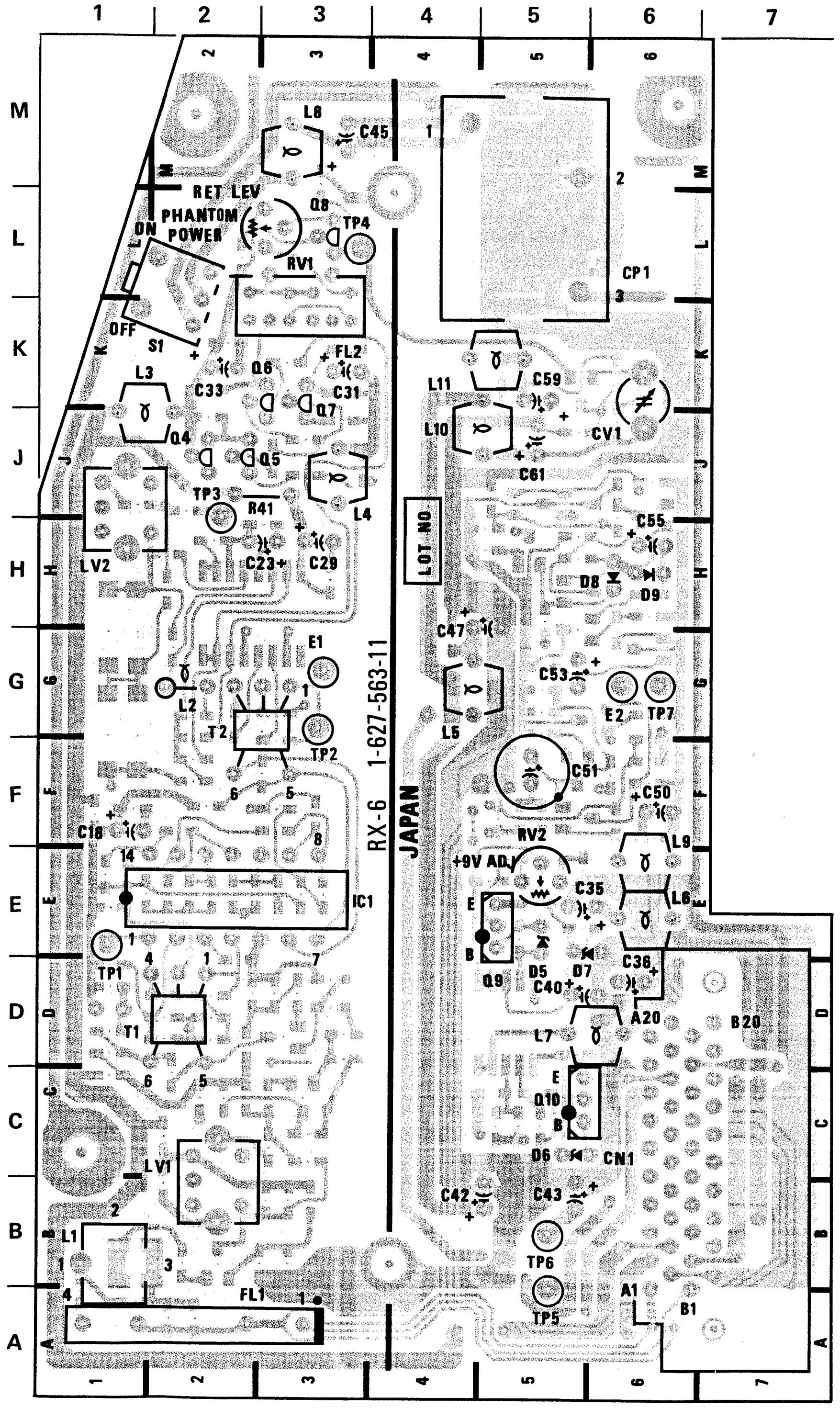
BOARD LAYOUT

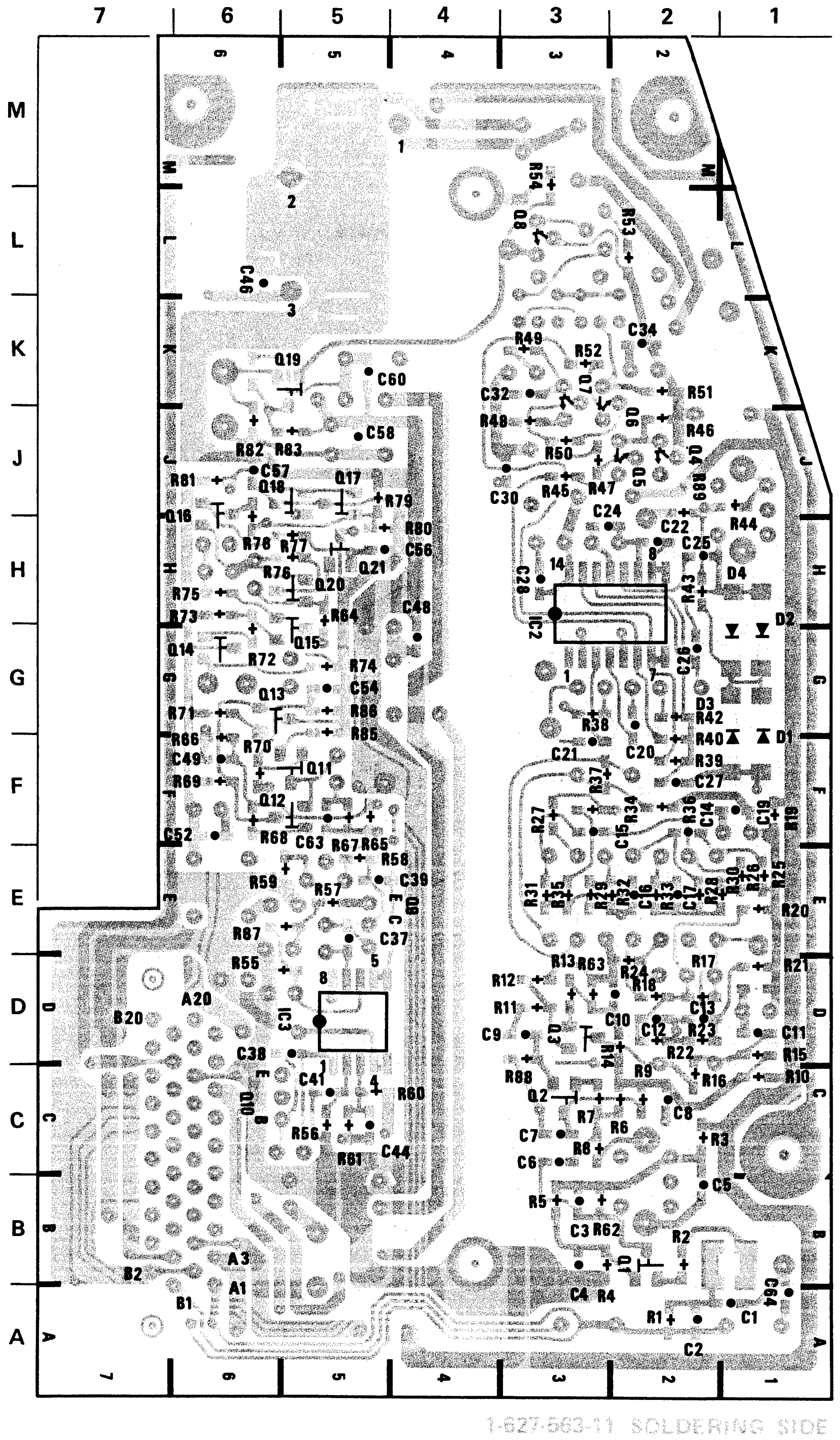

SW-312 Board
SW-44 Board
SW-44 Board
FL-70 Board
VA-80 Board
HN-106 Board
DC-42 Board
DC-43 Board
MD-54 Board
MD-55 Board
TR-47 Board
RX-6 Board
IF-423 Board

RX-6 BOARD

RX-6 (1-627-563-11)

CN1	C-7C
CP1	L-5C
CV1	K-6C
D1	F-1S
D2	G-1S
D3	F-1S
D4	G-1S
D5	E-5C
D6	C-5C
D7	E-6C
D8	H-6C
D9	H-6C
E1	G-3C
E2	G-6C
FL1	A-2C
FL2	K-3C
IC1	E-2C
IC2	H-3S
IC3	D-5S
LV1	B-2C
LV2	J-1C
Q1	B-2S
Q2	C-3S
Q3	D-3S
Q4	J-2C J-2S
Q5	J-2C J-2S
Q6	K-3C K-3S
Q7	K-3C K-3S
Q8	L-3C L-3S
Q9	E-5C E-4S
Q10	C-5C C-6S
Q11	F-5S
Q12	F-5S
Q13	G-6S
Q14	G-6S
Q15	G-5S
Q16	J-6S
Q17	J-5S
Q18	J-5S
Q19	K-5S
Q20	H-5S
Q21	H-5S
RV1	L-3C
RV2	E-5C
S1	K-2C
T1	D-2C
T2	G-3C

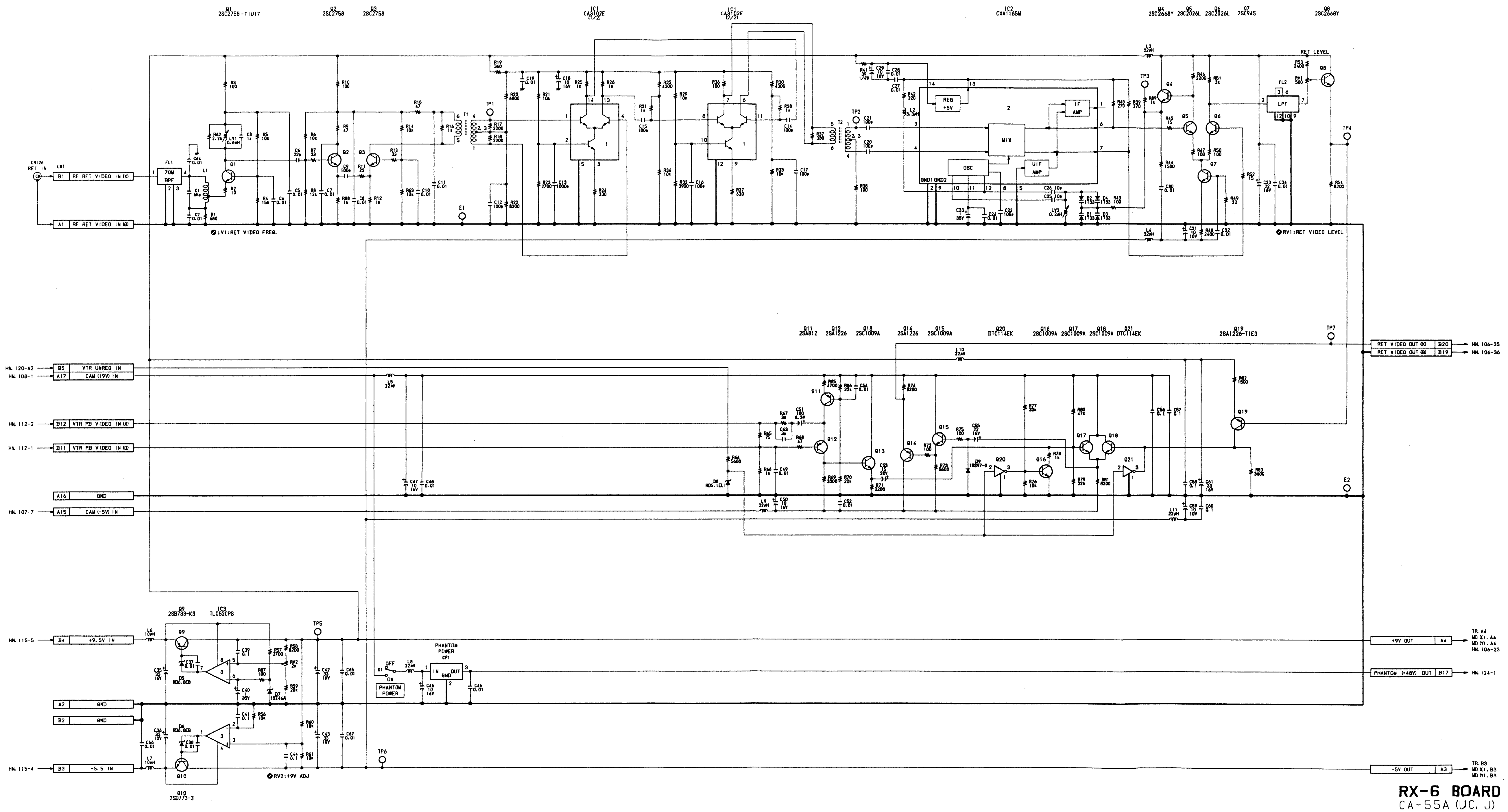

1 2 3 4 5 6 7
M L K J H G F E D C B A
RET LEV
PHANTOM POWER
ON
OFF
S1
RV1
Q8
TP4
L8
C45
CP1
LOT NO
RX-6 1-627-563-11
JAPAN
L3
Q4
Q5
Q6
Q7
FL2
L4
LV2
TP3
R41
C23
C29
L11
L10
C59
CV1
C61
C55
D8
D9
C47
L5
C53
E1
E2
TP7
L2
T2
TP2
C51
C50
C18
IC1
+9V ADJ
RV2
C35
L9
L6
Q9
D5
D7
C36
C40
TP1
T1
L7
A20
B20
Q10
D6
CN1
LV1
C42
C43
L1
FL1
TP6
TP5
A1
B1


7 6 5 4 3 2 1
M L K J H G F E D C B A
R54
R53
Q8
C46
Q19
C60
C58
R49
R52
C34
C32
C48
D7
Q6
R51
R46
R82
R83
R50
C57
Q18
Q17
R81
R79
R80
Q16
R78
R77
C56
R76
Q20
Q21
R45
R47
R44
C30
C24
C22
C25
D4
R75
R73
R64
IC2
C28
R43
D2
Q14
Q15
R72
R74
Q13
C54
R86
R71
R70
R85
R66
C49
R69
Q11
Q12
R68
C63
R67
R65
C52
R58
R59
R57
C39
C37
R87
R55
IC3
C38
A20
B20
C41
R60
R56
C44
R61
A3
B2
B1
A1
R42
R38
R40
D1
D3
C20
C21
C27
R39
R37
R27
R34
C15
R36
C14
C19
R18
R31
R35
R33
R32
C16
R13
C17
R28
R26
R25
R20
R12
R11
C9
Q3
R14
C10
R24
R16
C13
R17
R21
R23
C12
R22
C11
R15
R10
R88
Q2
R9
R7
R6
C8
C7
C6
R8
R3
C5
R5
C3
R62
Q1
R2
C64
C4
R4
R1
C1
C2
1-627-563-11 SOLDERING SIDE

RX-6 (1-627-563-11)

CN1	C-7C
CP1	L-5C
CV1	K-6C
D1	F-1S
D2	G-1S
D3	F-1S
D4	G-1S
D5	E-5C
D6	C-5C
D7	E-6C
D8	H-6C
D9	H-6C
E1	G-3C
E2	G-6C
FL1	A-2C
FL2	K-3C
IC1	E-2C
IC2	H-3S
IC3	D-5S
LV1	B-2C
LV2	J-1C
Q1	B-2S
Q2	C-3S
Q3	D-3S
Q4	J-2C J-2S
Q5	J-2C J-2S
Q6	K-3C K-3S
Q7	K-3C K-3S
Q8	L-3C L-3S
Q9	E-5C E-4S
Q10	C-5C C-6S
Q11	F-5S
Q12	F-5S
Q13	G-6S
Q14	G-6S
Q15	G-5S
Q16	J-6S
Q17	J-5S
Q18	J-5S
Q19	K-5S
Q20	H-5S
Q21	H-5S
RV1	L-3C
RV2	E-5C
S1	K-2C
T1	D-2C
T2	G-3C

RX-6 BOARD
RETURN VIDEO AMP

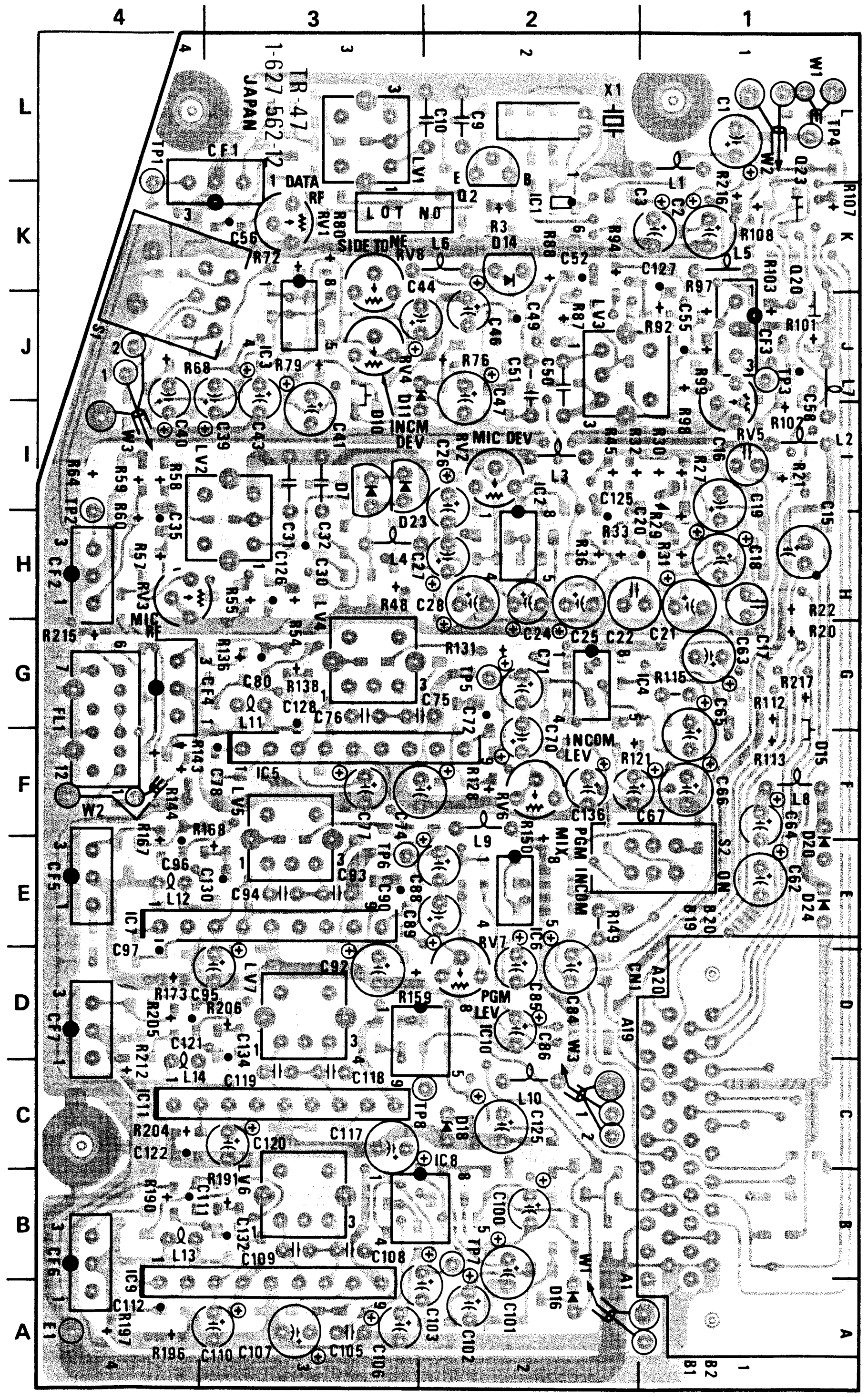

CN126
RET IN
CN1
B1 RF RET VIDEO IN (X)
A1 RF RET VIDEO IN (G)
FL1
70M BPF
LV1:RET VIDEO FREQ.
Q1 2SC2758-T1U17
Q2 2SC2758
Q3 2SC2758
T1
TP1
E1
IC1 CA3102E (1/2)
IC1 CA3102E (2/2)
T2
TP2
IC2 CXA1165M
REG +5V
IF AMP
MIX
OSC
U/F AMP
GND1 GND2
TP3
Q4 2SC2668Y
Q5 2SC2026L
Q6 2SC2026L
Q7 2SC945
Q8 2SC2668Y
L3 22µH
L4 22µH
RET LEVEL
R53 2400
RV1 500
FL2
LPF
TP4
RV1:RET VIDEO LEVEL
HN. 120-A2 → B5 VTR UNREG IN
HN. 108-1 → A17 CAM (19V) IN
HN. 112-2 → B12 VTR PB VIDEO IN (X)
HN. 112-1 → B11 VTR PB VIDEO IN (G)
A16 GND
HN. 107-7 → A15 CAM (-5V) IN
Q11 2SA812
Q12 2SA1226
Q13 2SC1009A
Q14 2SA1226
Q15 2SC1009A
Q20 DTC114EK
Q16 2SC1009A
Q17 2SC1009A
Q18 2SC1009A
Q21 DTC114EK
Q19 2SA1226-T1E3
L5 22µH
L9 22µH
L10 22µH
L11 22µH
D8 RD5.1CL
D9 1SS97-0
TP7
E2
RET VIDEO OUT (X) B20 → HN. 106-35
RET VIDEO OUT (G) B19 → HN. 106-36
Q9 2SB733-K3
IC3 TL082CPS
HN. 115-5 → B4 +9.5V IN
L6 10µH
A2 GND
B2 GND
HN. 115-4 → B3 -5.5 IN
L7 10µH
Q10 2SD773-3
D5 RD6.8EB
D6 RD6.8EB
D7 1S246A
R57 2700
R58 8200
RV2 2k
R87 100
R59 20k
R60 18k
R61 10k
TP5
TP6
RV2:+9V ADJ
S1 OFF ON
PHANTOM POWER
L8 22µH
PHANTOM POWER CP1
IN OUT GND
+9V OUT A4 → TR. A4, MD (C). A4, MD (Y). A4, HN. 106-23
PHANTOM (+48V) OUT B17 → HN. 124-1
-5V OUT A3 → TR. B3, MD (C). B3, MD (Y). B3

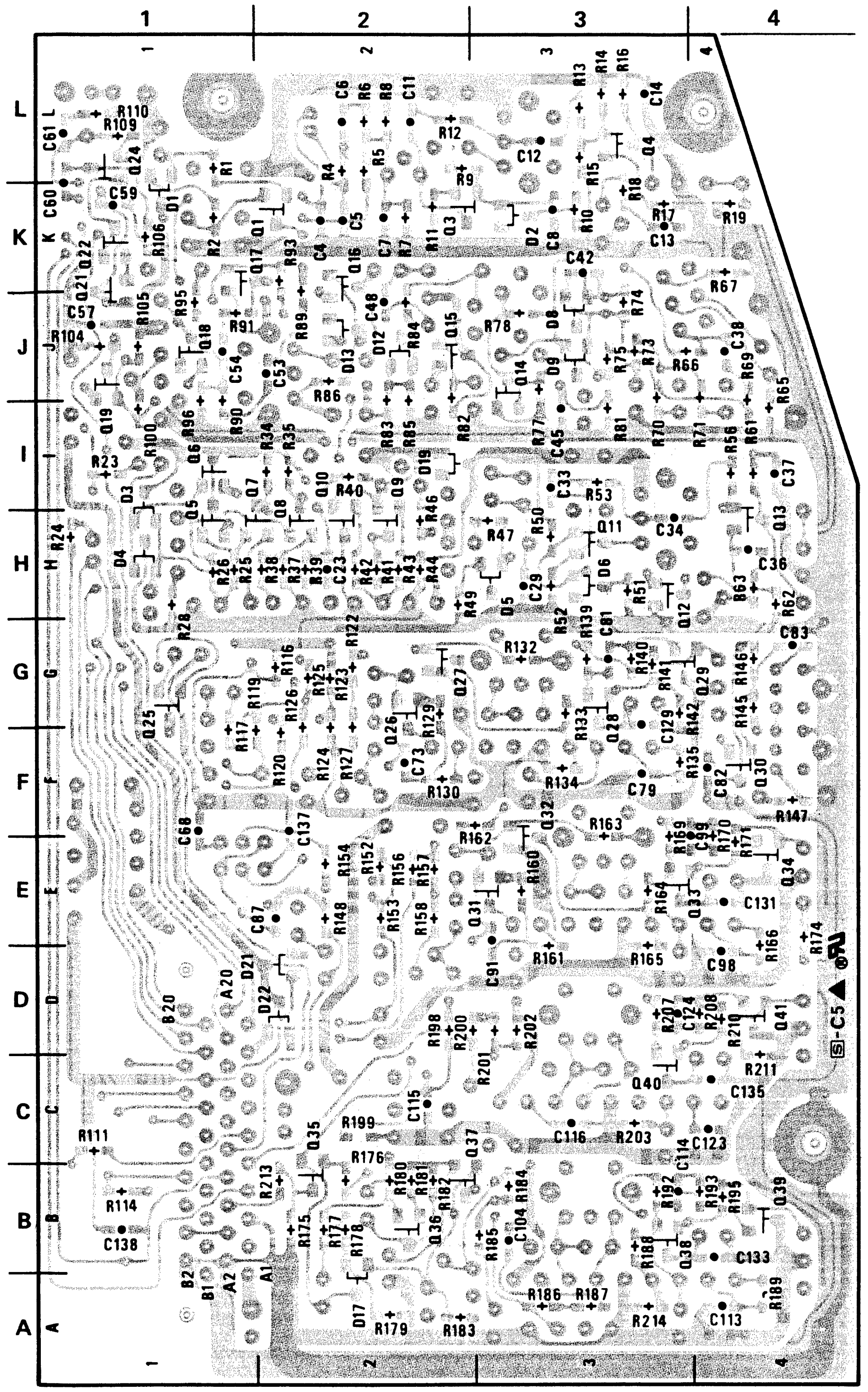
RX-6 BOARD
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-RX6/M

TR-47 BOARD

TR-47 (1-627-562-12)

CF1	K-3C	Q1	K-2S
CF2	H-4C	Q2	L-2C
CF3	J-1C	Q3	K-2S
CF4	G-4C	Q4	L-3S
CF5	E-4C	Q5	H-1S
CF6	B-4C	Q6	I-1S
CF7	D-4C	Q7	H-1S
		Q8	H-2S
CN1	C-1C	Q9	H-2S
		Q10	H-2S
D1	K-1S	Q11	H-3S
D2	K-3S	Q12	H-3S
D3	I-1S	Q13	H-4S
D4	H-1S	Q14	J-3S
D5	H-3S	Q15	J-2S
D6	H-3S	Q16	K-2S
D7	I-3C	Q17	K-1S
D8	J-3S	Q18	J-1S
D9	J-3S	Q19	J-1S
D10	J-3C	Q20	J-1C
D11	J-3C	Q21	K-1S
D12	J-2S	Q22	K-1S
D13	J-2S	Q23	K-1C
D14	K-2C	Q24	L-1S
D15	F-1C	Q25	G-1S
D16	A-2C	Q26	G-2S
D17	A-2S	Q27	G-2S
D18	C-2C	Q28	G-3S
D19	I-2S	Q29	G-3S
D20	E-1C	Q30	F-4S
D21	D-2S	Q31	E-3S
D22	D-2S	Q32	F-3S
D23	I-3C	Q33	E-3S
D24	E-1C	Q34	E-4S
		Q35	B-2S
E1	A-4C	Q36	B-2S
		Q37	B-2S
FL1	G-4C	Q38	B-3S
		Q39	B-4S
IC1	K-2C	Q40	C-3S
IC2	H-2C	Q41	D-4S
IC3	J-3C		
IC4	G-2C	RV1	K-3C
IC5	F-3C	RV2	I-2C
IC6	E-2C	RV3	H-4C
IC7	E-3C	RV4	J-3C
IC8	B-2C	RV5	I-1C
IC9	A-3C	RV6	F-2C
IC10	D-2C	RV7	D-2C
IC11	C-3C	RV8	K-3C
LV1	L-3C	S1	K-4C
LV2	H-3C	S2	E-1C
LV3	J-2C		
LV4	G-3C	TP1	K-4C
LV5	F-3C	TP2	I-4C
LV6	B-3C	TP3	J-1C
LV7	D-3C	TP4	L-1C
		TP5	G-2C
		TP6	E-3C
		TP7	E-3C
		TP8	C-2C
		X1	L-2C





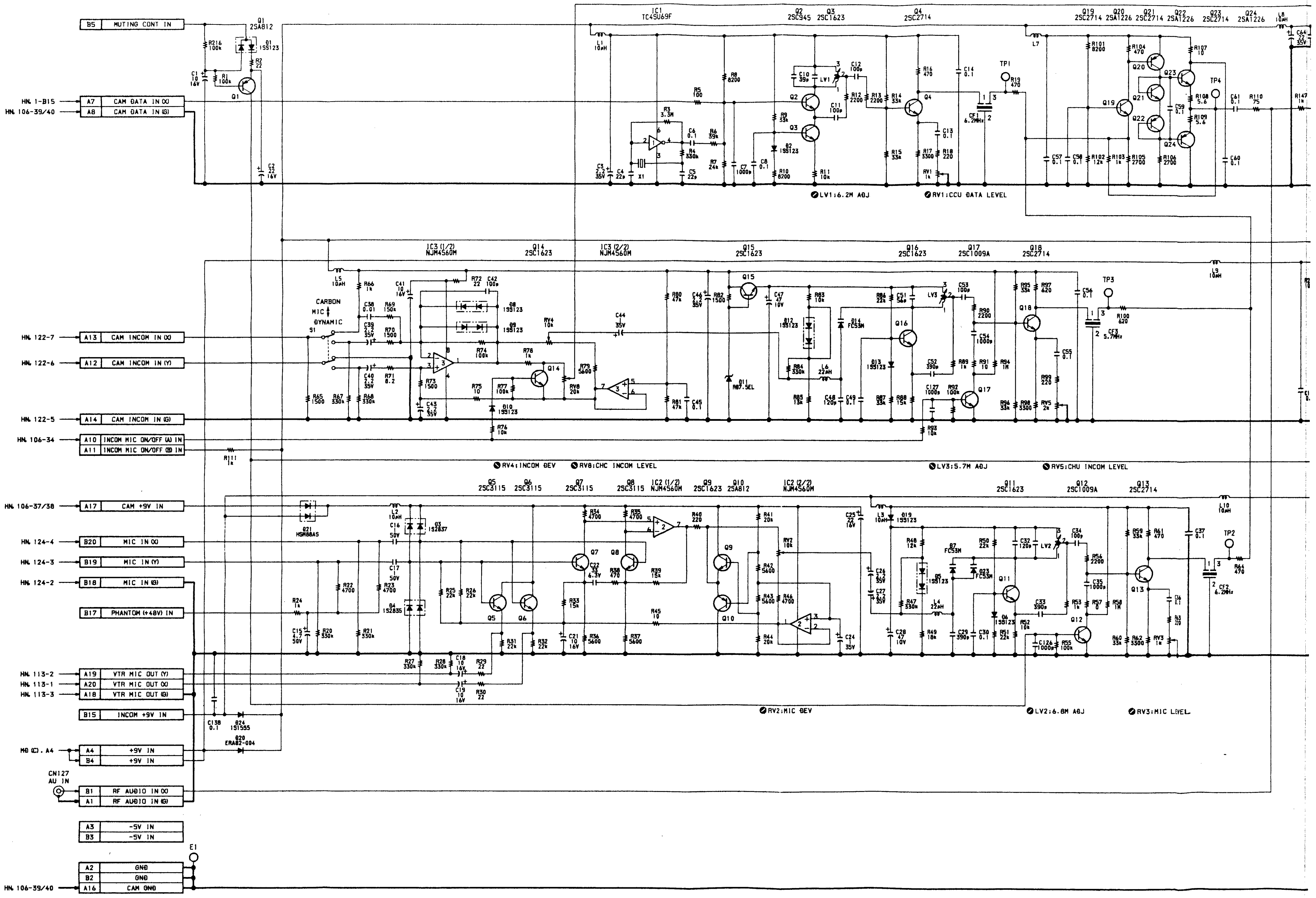
1-627-562-12 SOLDERING SIDE

TR-47 (1-627-562-12)

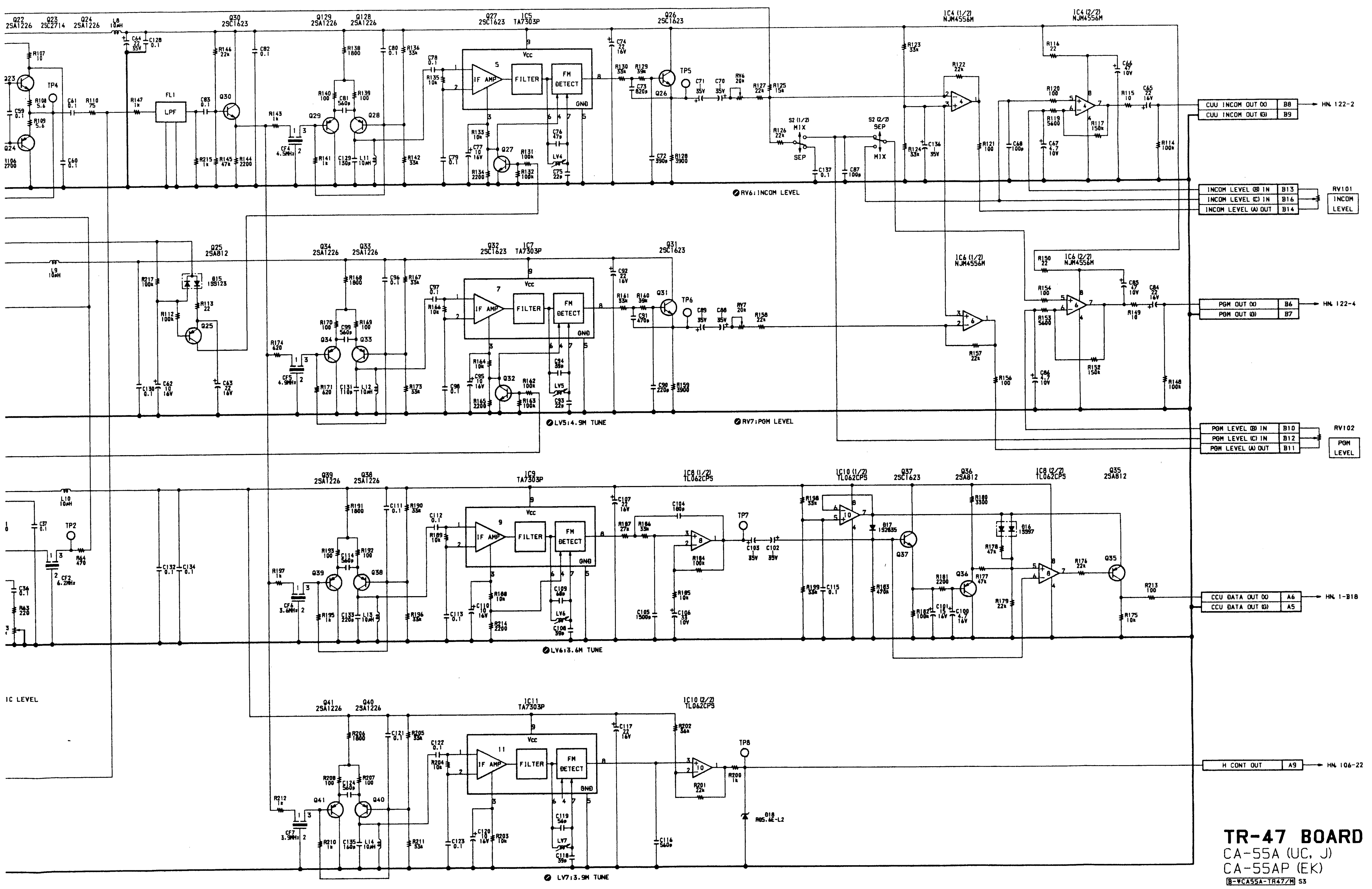
CF1	K-3C	Q1	K-2S
CF2	H-4C	Q2	L-2C
CF3	J-1C	Q3	K-2S
CF4	G-4C	Q4	L-3S
CF5	E-4C	Q5	H-1S
CF6	B-4C	Q6	I-1S
CF7	D-4C	Q7	H-1S
		Q8	H-2S
CN1	C-1C	Q9	H-2S
		Q10	H-2S
D1	K-1S	Q11	H-3S
D2	K-3S	Q12	H-3S
D3	I-1S	Q13	H-4S
D4	H-1S	Q14	J-3S
D5	H-3S	Q15	J-2S
D6	H-3S	Q16	K-2S
D7	I-3C	Q17	K-1S
D8	J-3S	Q18	J-1S
D9	J-3S	Q19	J-1S
D10	J-3C	Q20	J-1C
D11	J-3C	Q21	K-1S
D12	J-2S	Q22	K-1S
D13	J-2S	Q23	K-1C
D14	K-2C	Q24	L-1S
D15	F-1C	Q25	G-1S
D16	A-2C	Q26	G-2S
D17	A-2S	Q27	G-2S
D18	C-2C	Q28	G-3S
D19	I-2S	Q29	G-3S
D20	E-1C	Q30	F-4S
D21	D-2S	Q31	E-3S
D22	D-2S	Q32	F-3S
D23	I-3C	Q33	E-3S
D24	E-1C	Q34	E-4S
		Q35	B-2S
E1	A-4C	Q36	B-2S
		Q37	B-2S
FL1	G-4C	Q38	B-3S
		Q39	B-4S
IC1	K-2C	Q40	C-3S
IC2	H-2C	Q41	D-4S
IC3	J-3C		
IC4	G-2C	RV1	K-3C
IC5	F-3C	RV2	I-2C
IC6	E-2C	RV3	H-4C
IC7	E-3C	RV4	J-3C
IC8	B-2C	RV5	I-1C
IC9	A-3C	RV6	F-2C
IC10	D-2C	RV7	D-2C
IC11	C-3C	RV8	K-3C
LV1	L-3C	S1	K-4C
LV2	H-3C	S2	E-1C
LV3	J-2C		
LV4	G-3C	TP1	K-4C
LV5	F-3C	TP2	I-4C
LV6	B-3C	TP3	J-1C
LV7	D-3C	TP4	L-1C
		TP5	G-2C
		TP6	E-3C
		TP7	E-3C
		TP8	C-2C
		X1	L-2C

TR-47 BOARD

TRANSMITTER FROM CAMERA TO CCU


B5 MUTING CONT IN
Q1 2SA812
D1 1SS123
HN 1-B15
HN 106-39/40
A7 CAM DATA IN (X)
A8 CAM DATA IN (G)
IC1 TC4SU69F
Q2 2SC945
Q3 2SC1623
Q4 2SC2714
Q19 2SC2714
Q20 2SA1226
Q21 2SC2714
Q22 2SA1226
Q23 2SC2714
Q24 2SA1226
TP1
TP4
LV1:6.2M ADJ
RV1:CCU DATA LEVEL
IC3 (1/2) NJM4560M
Q14 2SC1623
IC3 (2/2) NJM4560M
Q15 2SC1623
Q16 2SC1623
Q17 2SC1009A
Q18 2SC2714
TP3
CARBON
MIC
DYNAMIC
S1
HN 122-7
A13 CAM INCOM IN (X)
HN 122-6
A12 CAM INCOM IN (Y)
HN 122-5
A14 CAM INCOM IN (G)
HN 106-34
A10 INCOM MIC ON/OFF (A) IN
A11 INCOM MIC ON/OFF (B) IN
R111 1k
RV4:INCOM GEV
RV8:CHC INCOM LEVEL
LV3:5.7M ADJ
RV5:CHU INCOM LEVEL
Q5 2SC3115
Q6 2SC3115
Q7 2SC3115
Q8 2SC3115
IC2 (1/2) NJM4560M
Q9 2SC1623
Q10 2SA812
IC2 (2/2) NJM4560M
Q11 2SC1623
Q12 2SC1009A
Q13 2SC2714
TP2
HN 106-37/38
A17 CAM +9V IN
D21 HSM88AS
HN 124-4
B20 MIC IN (X)
HN 124-3
B19 MIC IN (Y)
HN 124-2
B18 MIC IN (G)
B17 PHANTOM (+48V) IN
HN 113-2
A19 VTR MIC OUT (Y)
HN 113-1
A20 VTR MIC OUT (X)
HN 113-3
A18 VTR MIC OUT (G)
B15 INCOM +9V IN
C138 0.1
D24 1S1555
D20 ERA82-004
MD (C). A4
A4 +9V IN
B4 +9V IN
CN127 AU IN
B1 RF AUDIO IN (X)
A1 RF AUDIO IN (G)
A3 -5V IN
B3 -5V IN
E1
A2 GND
B2 GND
HN 106-39/40
A16 CAM GND
RV2:MIC GEV
LV2:6.8M ADJ
RV3:MIC LEVEL

CA-55A (J, UC)
CA-55AP (EK)

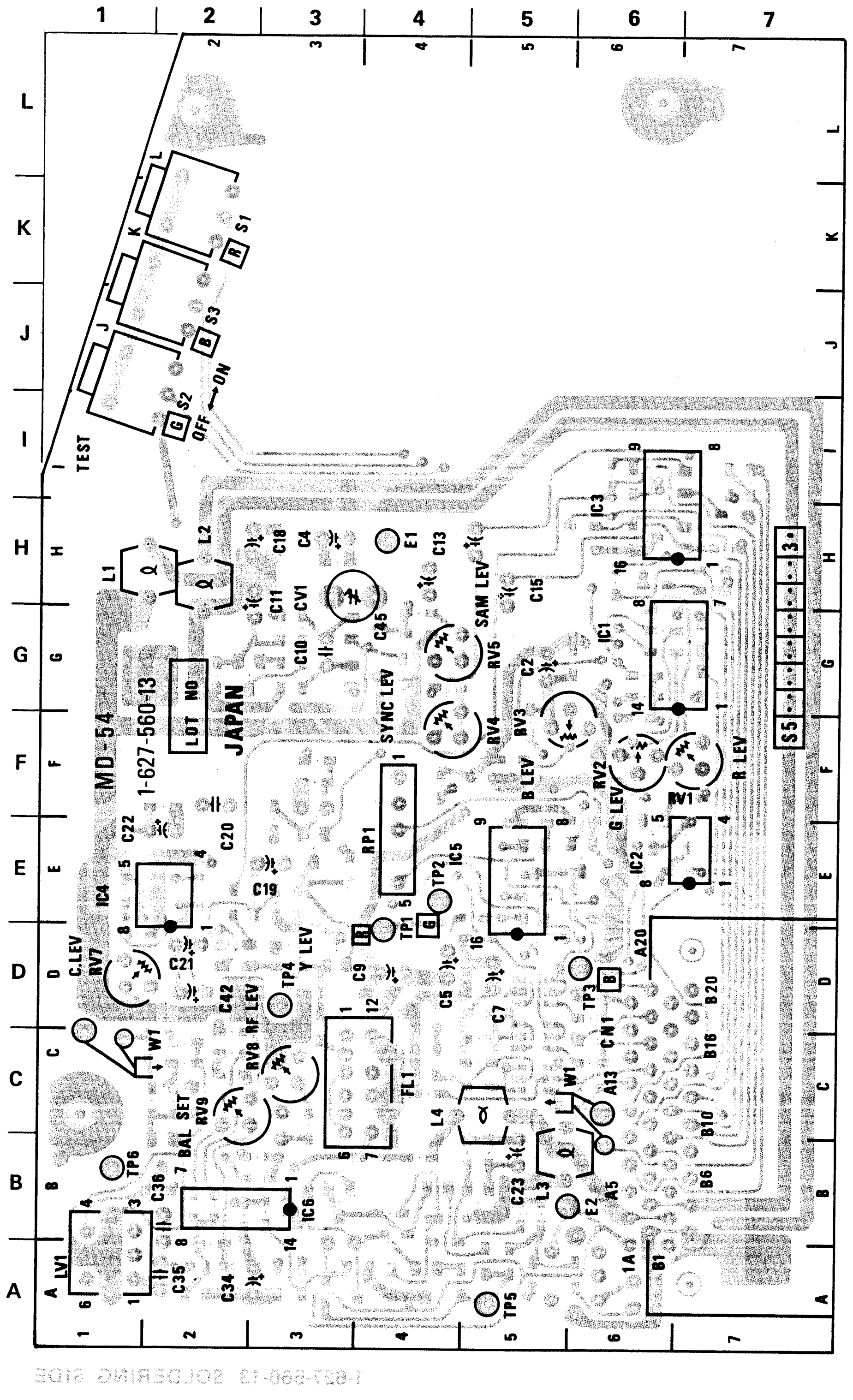

Q22 2SA1226
Q23 2SC2714
Q24 2SA1226
Q30 2SC1623
Q129 2SA1226
Q128 2SA1226
Q27 2SC1623
IC5 TA7303P
Q26 2SC1623
IC4 (1/2) NJM4556M
IC4 (2/2) NJM4556M
TP4
TP5
LPF
FL1
IF AMP
FILTER
FM DETECT
Vcc
GND
S2 (1/2) MIX SEP
S2 (2/2) SEP MIX
RV6: INCOM LEVEL
CUU INCOM OUT (X) B8
CUU INCOM OUT (G) B9
HN 122-2
INCOM LEVEL (B) IN B13
INCOM LEVEL (C) IN B16
INCOM LEVEL (A) OUT B14
RV101
INCOM LEVEL
Q25 2SA812
D15 1SS123
Q34 2SA1226
Q33 2SA1226
Q32 2SC1623
IC7 TA7303P
Q31 2SC1623
TP6
IC6 (1/2) NJM4556M
IC6 (2/2) NJM4556M
LV5: 4.5M TUNE
RV7: PGM LEVEL
PGM OUT (X) B6
PGM OUT (G) B7
HN 122-4
PGM LEVEL (B) IN B10
PGM LEVEL (C) IN B12
PGM LEVEL (A) OUT B11
RV102
PGM LEVEL
Q39 2SA1226
Q38 2SA1226
IC9 TA7303P
IC8 (1/2) TL062CPS
TP2
TP7
IC10 (1/2) TL062CPS
Q37 2SC1623
Q36 2SA812
IC8 (2/2) TL062CPS
Q35 2SA812
D17 1SS235
D16 1SS97
LV6: 3.6M TUNE
CCU DATA OUT (X) A6
CCU DATA OUT (G) A5
HN 1-B18
IC LEVEL
Q41 2SA1226
Q40 2SA1226
IC11 TA7303P
IC10 (2/2) TL062CPS
TP8
D18 RD5.6E-L2
LV7: 3.9M TUNE
H CONT OUT A9
HN 106-22
1
2
3
4
5
I
J
K
L
M
N
O
P

TR-47 BOARD

CA-55A (UC, J)
CA-55AP (EK)
B-¥CA55A-TR47/M S3

MD-54 BOARD

MD-54 (1-627-560-13)	
CN1	C-7C
CV1	H-3C
D-1	E-6S
E1	H-4C
E2	B-6C
FL1	C-4C
IC1	G-7C
IC2	E-7C
IC3	H-6C
IC4	E-2C
IC5	E-5C
IC6	B-2C
LV1	A-1C
Q2	H-6S
Q3	D-5S
Q4	E-5S
Q5	E-6S
Q6	G-4S
Q7	G-2S
Q8	G-4S
Q9	E-3S
Q10	D-3S
Q11	D-2S
Q12	B-5S
Q13	B-4S
Q14	A-4S
Q15	B-3S
Q16	B-3S
Q17	A-4S
Q18	B-2S
Q19	D-5S
Q20	C-5S
Q21	C-5S
RP1	E-4C
RV1	F-7C
RV2	F-6C
RV3	F-5C
RV4	F-4C
RV5	G-4C
RV7	D-1C
RV8	C-3C
RV9	C-2C
S1	K-2C
S2	J-1C
S3	J-2C
TP1	D-4C
TP2	E-4C
TP3	D-6C
TP4	D-3C
TP5	A-5C
TP6	B-1C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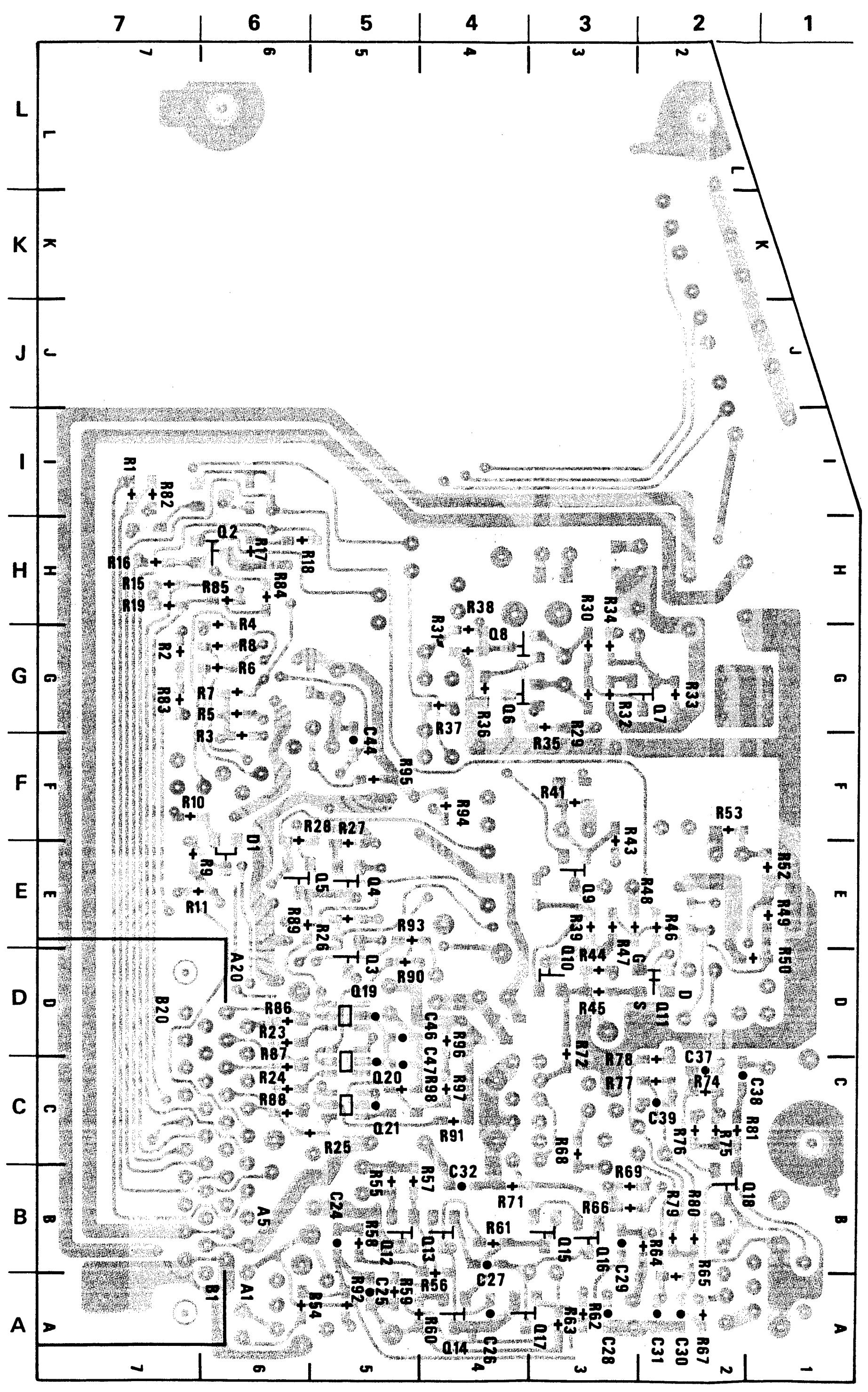
B
A
S1
S2
S3
TEST
OFF
ON
L1
L2
C18
C4
CV1
E1
C13
C11
C10
C45
SAM LEV
RV5
C15
IC3
IC1
C2
RV4
RV3
RV2
RV1
SYNC LEV
B LEV
G LEV
R LEV
LOT NO
JAPAN
MD-54
1-627-560-13
C22
C20
RP1
IC5
IC2
TP1
TP2
IC4
C19
C.LEV
RV7
C21
C42
TP4
Y LEV
C9
C5
RV8 RF LEV
C7
TP3
CN1
A20
B20
W1
BAL SET
RV9
FL1
L4
A13
B16
TP6
C36
IC6
C23
L3
E2
A5
B10
B6
LV1
C35
C34
TP5
A1
B1

MD-55 BO

MD-54 (1-627-560-13)	
CN1	C-7C
CV1	H-3C
D-1	E-6S
E1	H-4C
E2	B-6C
FL1	C-4C
IC1	G-7C
IC2	E-7C
IC3	H-6C
IC4	E-2C
IC5	E-5C
IC6	B-2C
LV1	A-1C
Q2	H-6S
Q3	D-5S
Q4	E-5S
Q5	E-6S
Q6	G-4S
Q7	G-2S
Q8	G-4S
Q9	E-3S
Q10	D-3S
Q11	D-2S
Q12	B-5S
Q13	B-4S
Q14	A-4S
Q15	B-3S
Q16	B-3S
Q17	A-4S
Q18	B-2S
Q19	D-5S
Q20	C-5S
Q21	C-5S
RP1	E-4C
RV1	F-7C
RV2	F-6C
RV3	F-5C
RV4	F-4C
RV5	G-4C
RV7	D-1C
RV8	C-3C
RV9	C-2C
S1	K-2C
S2	J-1C
S3	J-2C
TP1	D-4C
TP2	E-4C
TP3	D-6C
TP4	D-3C
TP5	A-5C
TP6	B-1C

MD-55 (1-627-561-	
CN1	C-7C C-7S
CP1	F-1C
E1	H-1C
E2	J-1C
E3	C-2C
E4	G-1C
FL1	C-4C
FL2	C-4C
FL3	B-1C
FL4	F-5C
FL5	E-1C
IC1	J-2C
IC2	B-3C
IC3	D-3C
IC4	E-3C
IC5	F-3C
Q1	G-7S
Q2	H-7S
Q3	H-7S
Q4	J-5S
Q5	J-5S
Q6	I-5S
Q7	I-4S
Q8	I-3S
Q9	I-2S
Q10	K-7S
Q11	K-7S
Q12	K-5S
Q13	J-5S
Q14	K-5S
Q15	K-4S
Q16	J-3S
Q17	J-2S
Q18	B-5S
Q19	B-4S
Q20	A-4S
Q21	B-4S
Q22	B-3S
Q23	A-4S
Q24	E-5S
Q25	E-5S
Q26	F-1S
Q27	C-1S
RP1	I-6C
RP2	K-6C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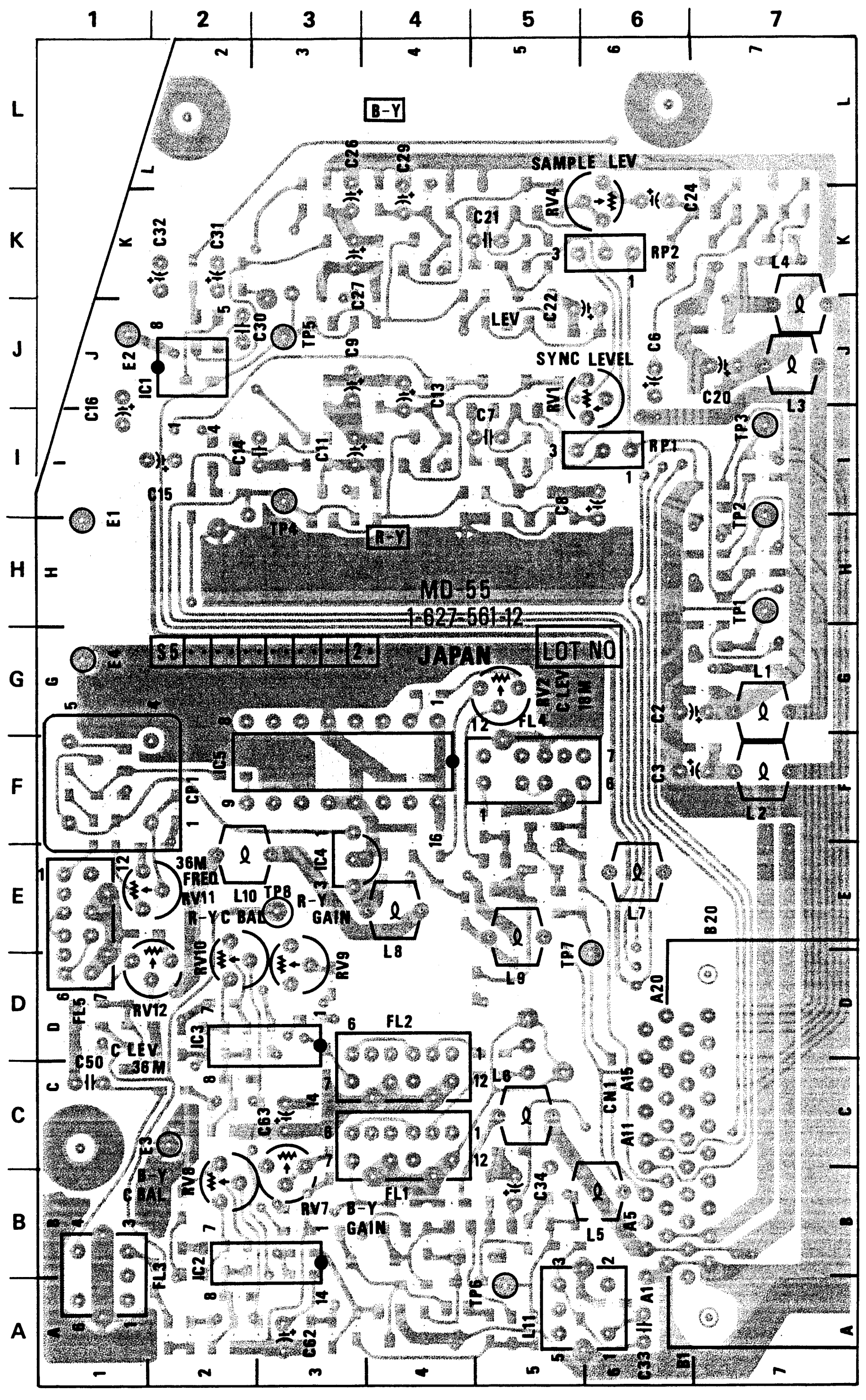
R1
R82
R16
R15
R19
Q2
R17
R18
R85
R84
R4
R8
R6
R2
R83
R7
R5
R3
R38
Q8
R31
R30
R34
R33
Q6
Q7
R32
R29
R37
R35
C44
R95
R10
R94
R41
R53
R28
R27
D1
Q5
Q4
R43
R52
R49
R9
R11
R89
R26
R93
Q3
R90
Q9
R39
R46
R44
R47
Q10
R50
Q19
A20
B20
R86
R23
R87
R24
R88
C46
C47
R96
R97
R98
Q20
Q21
R91
R45
Q11
R72
R78
C37
R77
R74
C38
R81
C39
R76
R75
R25
C32
R68
R69
R71
R66
R80
R79
Q18
C24
R55
R57
R58
Q12
R61
Q13
R56
Q15
Q16
R64
R65
C29
A5
B1
A1
R54
R92
C27
C25
R59
R60
Q14
C26
Q17
R63
R62
C28
C31
C30
R67

1-627-560-13 SOLDERING SIDE

MD-55 BOARD

MD-55 (1-627-561-12)

CN1	C-7C	RV1	J-6C
	C-7S	RV2	G-5C
		RV4	K-6C
CP1	F-1C	RV7	B-3C
		RV8	B-2C
E1	H-1C	RV9	D-3C
E2	J-1C	RV10	D-2C
E3	C-2C	RV11	E-2C
E4	G-1C	RV12	D-2C
FL1	C-4C	TP1	H-7C
FL2	C-4C	TP2	I-7C
FL3	B-1C	TP3	I-7C
FL4	F-5C	TP4	I-3C
FL5	E-1C	TP5	J-3C
		TP6	A-5C
IC1	J-2C	TP7	D-6C
IC2	B-3C	TP8	E-3C
IC3	D-3C		
IC4	E-3C		
IC5	F-3C		
Q1	G-7S		
Q2	H-7S		
Q3	H-7S		
Q4	J-5S		
Q5	J-5S		
Q6	I-5S		
Q7	I-4S		
Q8	I-3S		
Q9	I-2S		
Q10	K-7S		
Q11	K-7S		
Q12	K-5S		
Q13	J-5S		
Q14	K-5S		
Q15	K-4S		
Q16	J-3S		
Q17	J-2S		
Q18	B-5S		
Q19	B-4S		
Q20	A-4S		
Q21	B-4S		
Q22	B-3S		
Q23	A-4S		
Q24	E-5S		
Q25	E-5S		
Q26	F-1S		
Q27	C-1S		
RP1	I-6C		
RP2	K-6C		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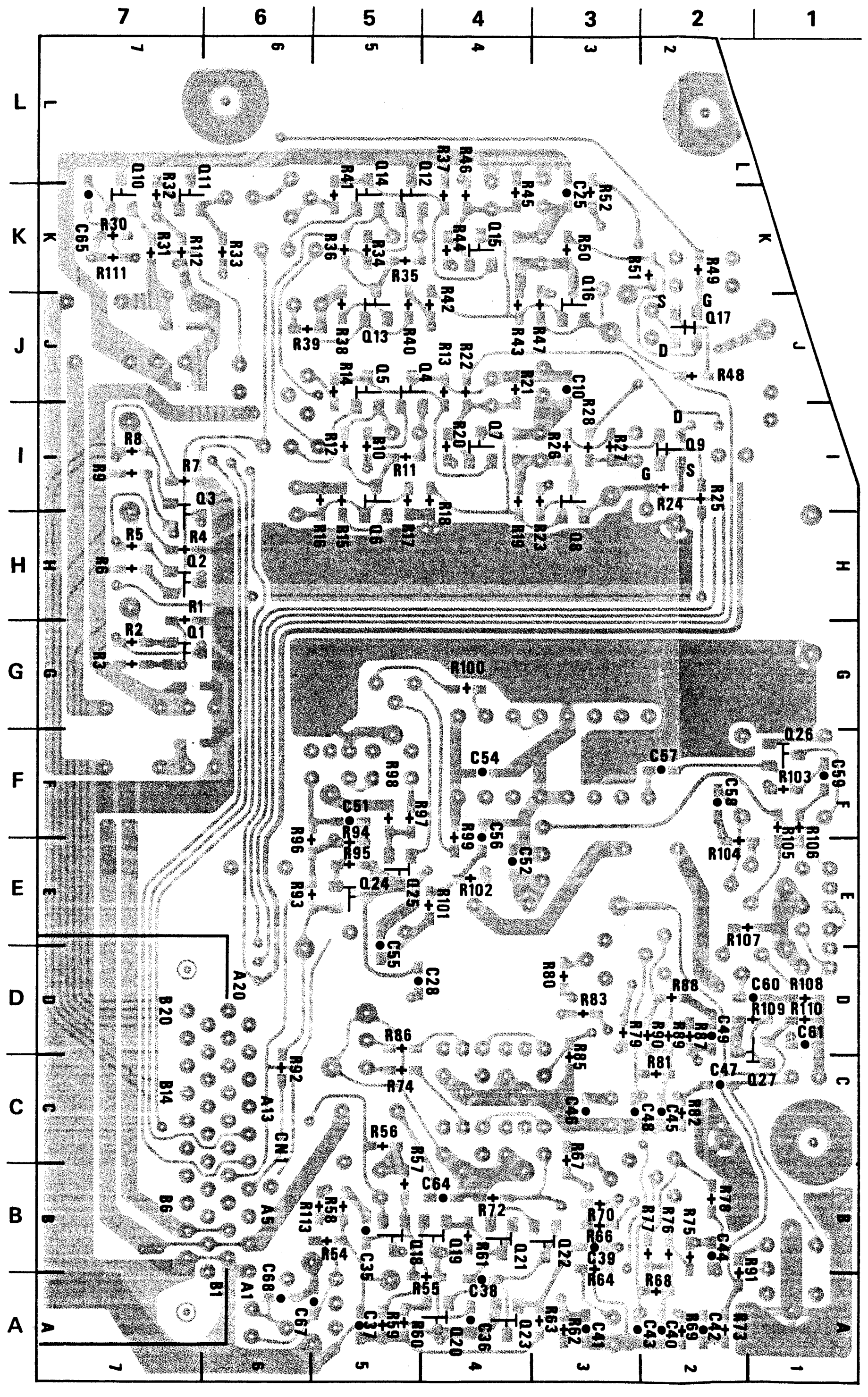
A
B-Y
SAMPLE LEV
LEV
SYNC LEVEL
R-Y
MD-55
1-627-561-12
JAPAN
LOT NO
36M FREQ
R-YC BAL
R-Y GAIN
C LEV 36M
B-Y C BAL
B-Y GAIN
FL1
FL2
CN1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F
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D
C
B
A
CN1

1-627-561-12 SOLDERING SIDE

MD-55 (1-627-561-12)

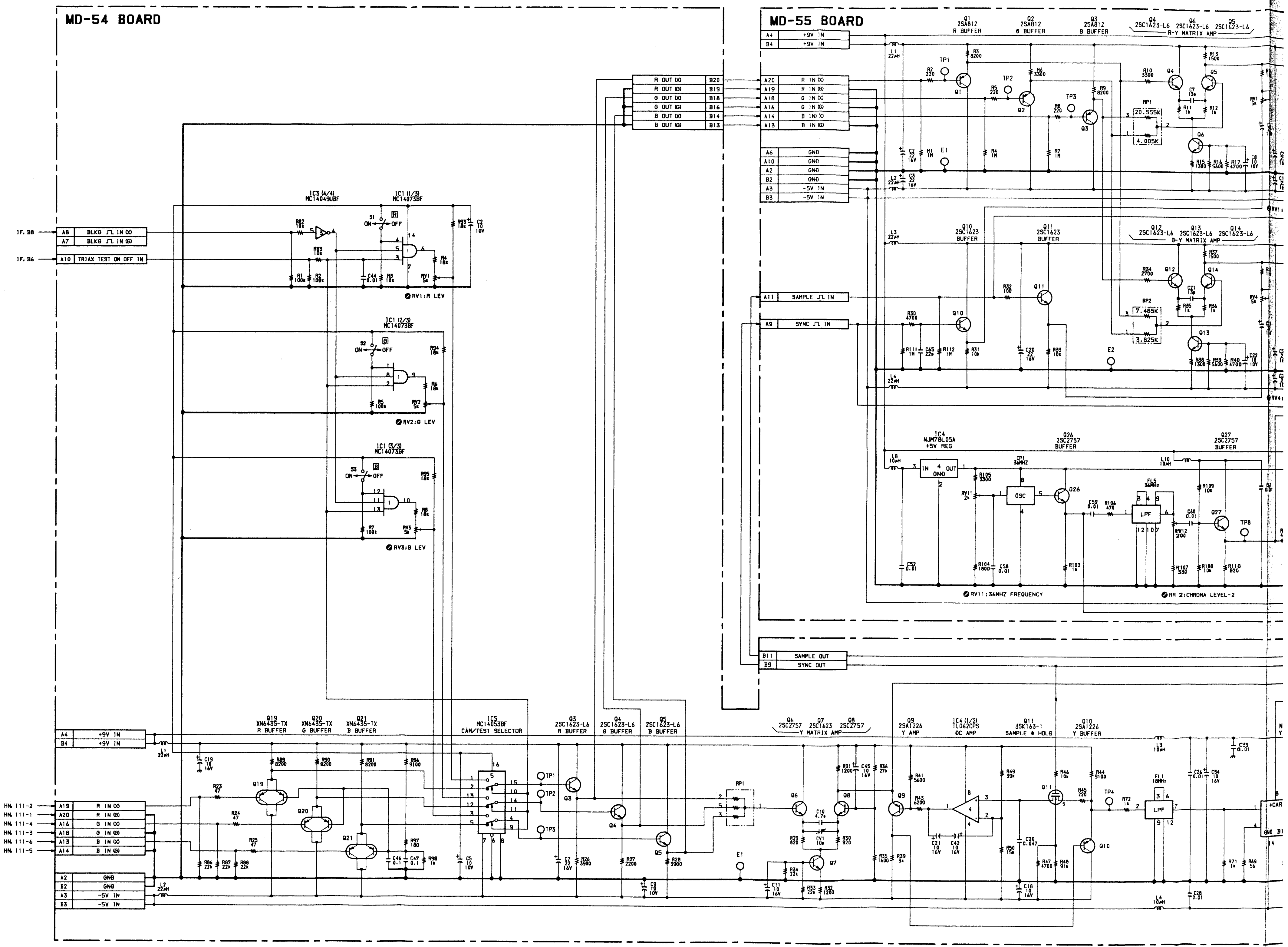
CN1	C-7C	RV1	J-6C
	C-7S	RV2	G-5C
		RV4	K-6C
CP1	F-1C	RV7	B-3C
		RV8	B-2C
E1	H-1C	RV9	D-3C
E2	J-1C	RV10	D-2C
E3	C-2C	RV11	E-2C
E4	G-1C	RV12	D-2C
FL1	C-4C	TP1	H-7C
FL2	C-4C	TP2	I-7C
FL3	B-1C	TP3	I-7C
FL4	F-5C	TP4	I-3C
FL5	E-1C	TP5	J-3C
		TP6	A-5C
IC1	J-2C	TP7	D-6C
IC2	B-3C	TP8	E-3C
IC3	D-3C		
IC4	E-3C		
IC5	F-3C		
Q1	G-7S		
Q2	H-7S		
Q3	H-7S		
Q4	J-5S		
Q5	J-5S		
Q6	I-5S		
Q7	I-4S		
Q8	I-3S		
Q9	I-2S		
Q10	K-7S		
Q11	K-7S		
Q12	K-5S		
Q13	J-5S		
Q14	K-5S		
Q15	K-4S		
Q16	J-3S		
Q17	J-2S		
Q18	B-5S		
Q19	B-4S		
Q20	A-4S		
Q21	B-4S		
Q22	B-3S		
Q23	A-4S		
Q24	E-5S		
Q25	E-5S		
Q26	F-1S		
Q27	C-1S		
RP1	I-6C		
RP2	K-6C		

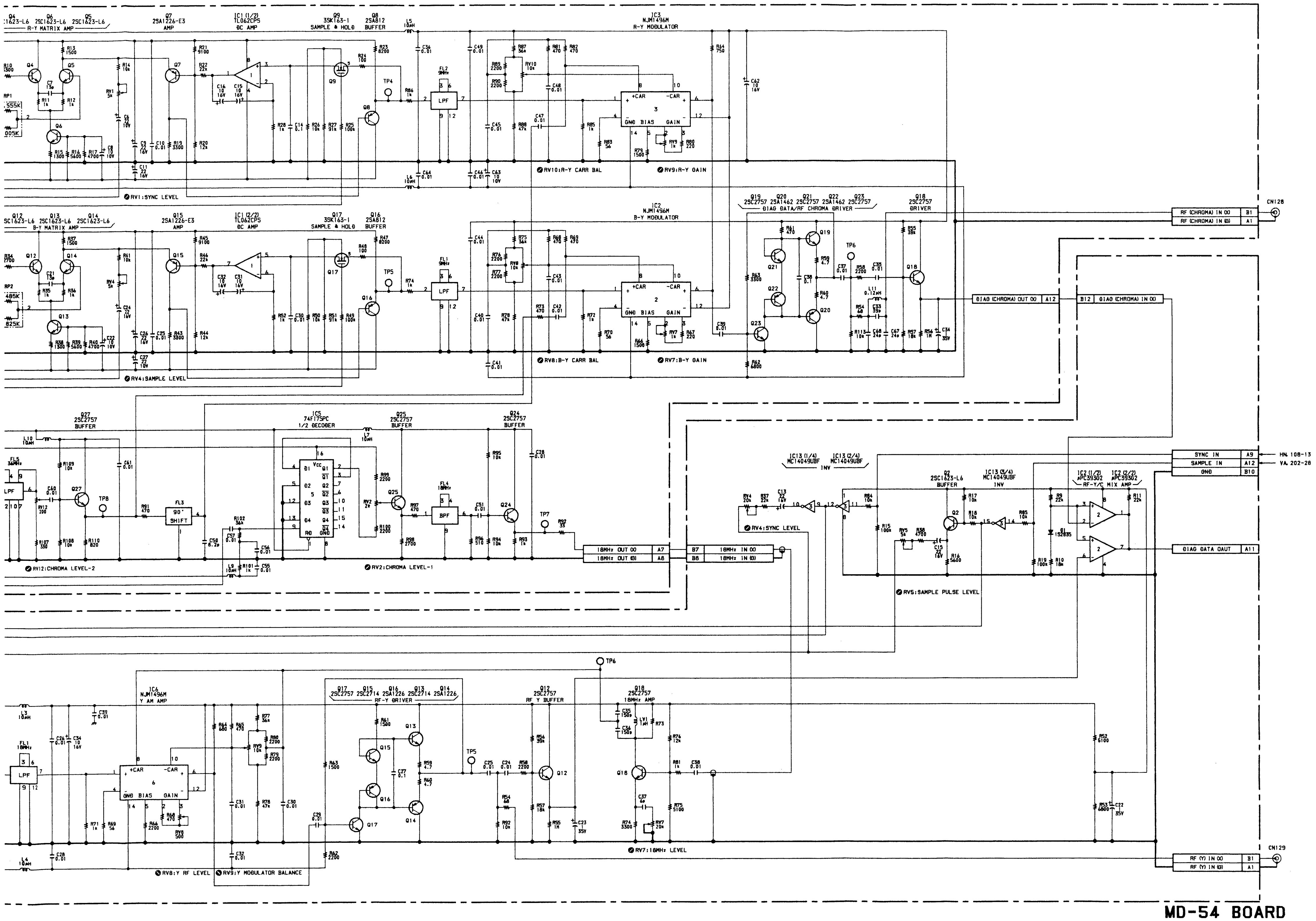
MD-54 BOARD

CAM-TEST SIGNAL SELECTOR
RF-Y DRIVER

MD-55 BOARD

R-Y SIGNAL GEN
B-Y SIGNAL GEN
RF-CHROMA SIGNAL DRIVER


MD-54 BOARD
MD-55 BOARD
IC3 (4/4) MC14049UBF
IC1 (1/3) MC14073BF
IC1 (2/3) MC14073BF
IC1 (3/3) MC14073BF
BLKG ⎍ IN (X)
BLKG ⎍ IN (G)
TRIAX TEST ON OFF IN
RV1:R LEV
RV2:G LEV
RV3:B LEV
R OUT (X)
R OUT (G)
G OUT (X)
G OUT (G)
B OUT (X)
B OUT (G)
Q19 XN6435-TX R BUFFER
Q20 XN6435-TX G BUFFER
Q21 XN6435-TX B BUFFER
IC5 MC14053BF CAM/TEST SELECTOR
Q3 2SC1623-L6 R BUFFER
Q4 2SC1623-L6 G BUFFER
Q5 2SC1623-L6 B BUFFER
Q6 2SC2757 Q7 2SC1623 Q8 2SC2757 Y MATRIX AMP
Q9 2SA1226 Y AMP
IC4 (1/2) TL062CPS DC AMP
Q11 3SK163-1 SAMPLE & HOLD
Q10 2SA1226 Y BUFFER
+9V IN
GND
-5V IN
R IN (X)
R IN (G)
G IN (X)
G IN (G)
B IN (X)
B IN (G)
Q1 2SA812 R BUFFER
Q2 2SA812 G BUFFER
Q3 2SA812 B BUFFER
Q4 2SC1623-L6 Q6 2SC1623-L6 Q5 2SC1623-L6 R-Y MATRIX AMP
Q10 2SC1623 BUFFER
Q11 2SC1623 BUFFER
Q12 2SC1623-L6 Q13 2SC1623-L6 Q14 2SC1623-L6 B-Y MATRIX AMP
SAMPLE ⎍ IN
SYNC ⎍ IN
IC4 NJM78L05A +5V REG
Q26 2SC2757 BUFFER
Q27 2SC2757 BUFFER
OSC
LPF
RV11:36MHZ FREQUENCY
RV12:CHROMA LEVEL-2
SAMPLE OUT
SYNC OUT
TP1
TP2
TP3
TP4
TP8
E1
E2


Q4 Q6 Q5 2SC1623-L6 R-Y MATRIX AMP
Q7 2SA1226-E3 AMP
IC1 (1/2) TL062CP5 DC AMP
Q9 3SK163-1 SAMPLE & HOLD
Q8 2SA812 BUFFER
IC3 NJM1496M R-Y MODULATOR
RV1:SYNC LEVEL
RV10:R-Y CARR BAL
RV9:R-Y GAIN
Q12 Q13 Q14 2SC1623-L6 B-Y MATRIX AMP
Q15 2SA1226-E3 AMP
IC1 (2/2) TL062CP5 DC AMP
Q17 3SK163-1 SAMPLE & HOLD
Q16 2SA812 BUFFER
IC2 NJM1496M B-Y MODULATOR
RV4:SAMPLE LEVEL
RV8:B-Y CARR BAL
RV7:B-Y GAIN
Q19 2SC2757 Q20 2SA1462 Q21 2SC2757 Q22 2SA1462 Q23 2SC2757 DIAG DATA/RF CHROMA DRIVER
Q18 2SC2757 DRIVER
CN128
RF (CHROMA) IN (X) B1
RF (CHROMA) IN (E) A1
BIAS (CHROMA) OUT (X) A12
B12 BIAS (CHROMA) IN (X)
Q27 2SC2757 BUFFER
IC5 74F175PC 1/2 DECODER
Q25 2SC2757 BUFFER
Q24 2SC2757 BUFFER
FL3 90° SHIFT
RV12:CHROMA LEVEL-2
RV2:CHROMA LEVEL-1
18MHz OUT (X) A7
18MHz OUT (E) A6
B7 18MHz IN (X)
B8 18MHz IN (E)
IC13 (1/4) MC14049UBF
IC13 (2/4) MC14049UBF INV
Q2 2SC1623-L6 BUFFER
IC13 (3/4) MC14049UBF INV
IC2 (1/2) µPC4570 IC2 (2/2) µPC4570 RF-Y/C MIX AMP
RV4:SYNC LEVEL
RV5:SAMPLE PULSE LEVEL
SYNC IN A9
SAMPLE IN A12
GND B10
HN 108-13
VA 202-28
DIAG DATA OUT A11
TP6
IC6 NJM1496M Y AM AMP
Q17 2SC2757 Q15 2SC2714 Q16 2SA1226 Q13 2SC2714 Q14 2SA1226 RF-Y DRIVER
Q12 2SC2757 RF Y BUFFER
Q18 2SC2757 18MHz AMP
RV8:Y RF LEVEL
RV9:Y MODULATOR BALANCE
RV7:18MHz LEVEL
CN129
RF (Y) IN (X) B1
RF (Y) IN (E) A1

MD-54 BOARD
MD-55 BOARD

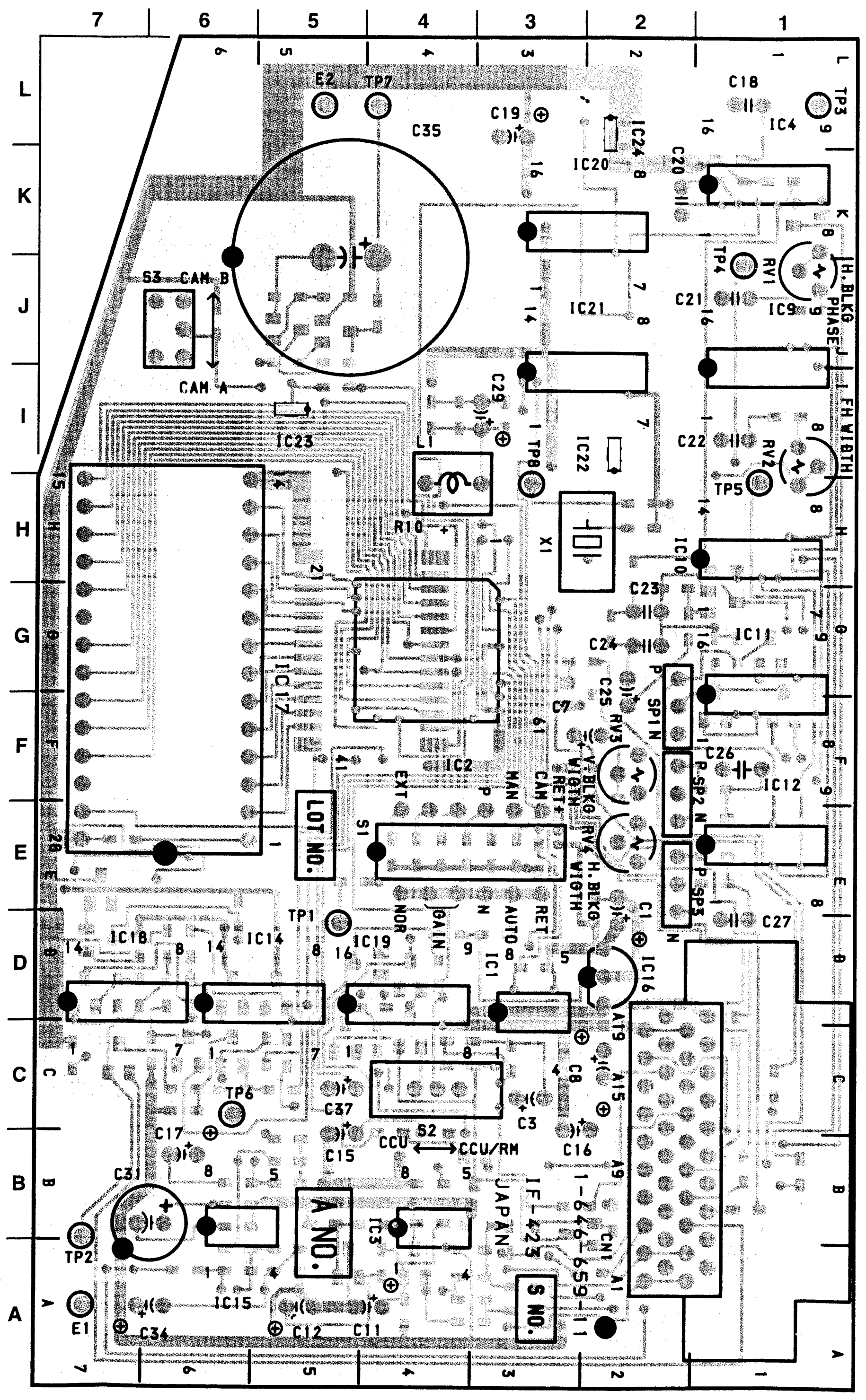
CA-55A (UC, J)
CA-55AP (EK)

B-W CA55A-MD54/55/M

IF-423 BOARD

IF-423 (1-646-659-11)

CN1	A-2C	TP1	D-5C
		TP2	A-7C
D1	C-4S	TP3	L-1C
D2	D-4S	TP4	J-1C
D3	G-1S	TP5	H-1C
D4	F-1S	TP6	C-6C
D5	F-1S	TP7	L-4C
D6	D-5S	TP8	I-3C
D8	D-5S		
D9	E-7S	X1	H-3C
E1	A-7C		
E2	L-5C		
IC1	D-3C		
IC2	F-4C		
IC3	B-4C		
IC4	L-1C		
IC9	J-1C		
IC10	H-2C		
IC11	G-1C		
IC12	F-1C		
IC13	G-4S		
IC14	D-5C		
IC15	A-6C		
IC16	D-2C		
IC18	D-7C		
IC19	D-4C		
IC20	K-3C		
IC21	J-3C		
IC22	I-3C		
IC23	I-5C		
IC24	L-2C		
Q1	A-2S		
Q2	B-3S		
Q3	B-4S		
Q4	A-5S		
Q5	C-7S		
Q6	C-6S		
Q7	C-6S		
Q8	D-7S		
Q9	F-3S		
Q10	K-1S		
Q11	G-1S		
Q12	J-4S		
Q13	J-5S		
Q14	D-6S		
Q15	D-5S		
Q16	D-7S		
RV1	J-1C		
RV2	I-1C		
RV3	F-2C		
RV4	E-2C		
SP1	F-2C		
SP2	F-1C		
SP3	E-1C		
S1	E-4C		
S2	C-4C		
S3	J-6C		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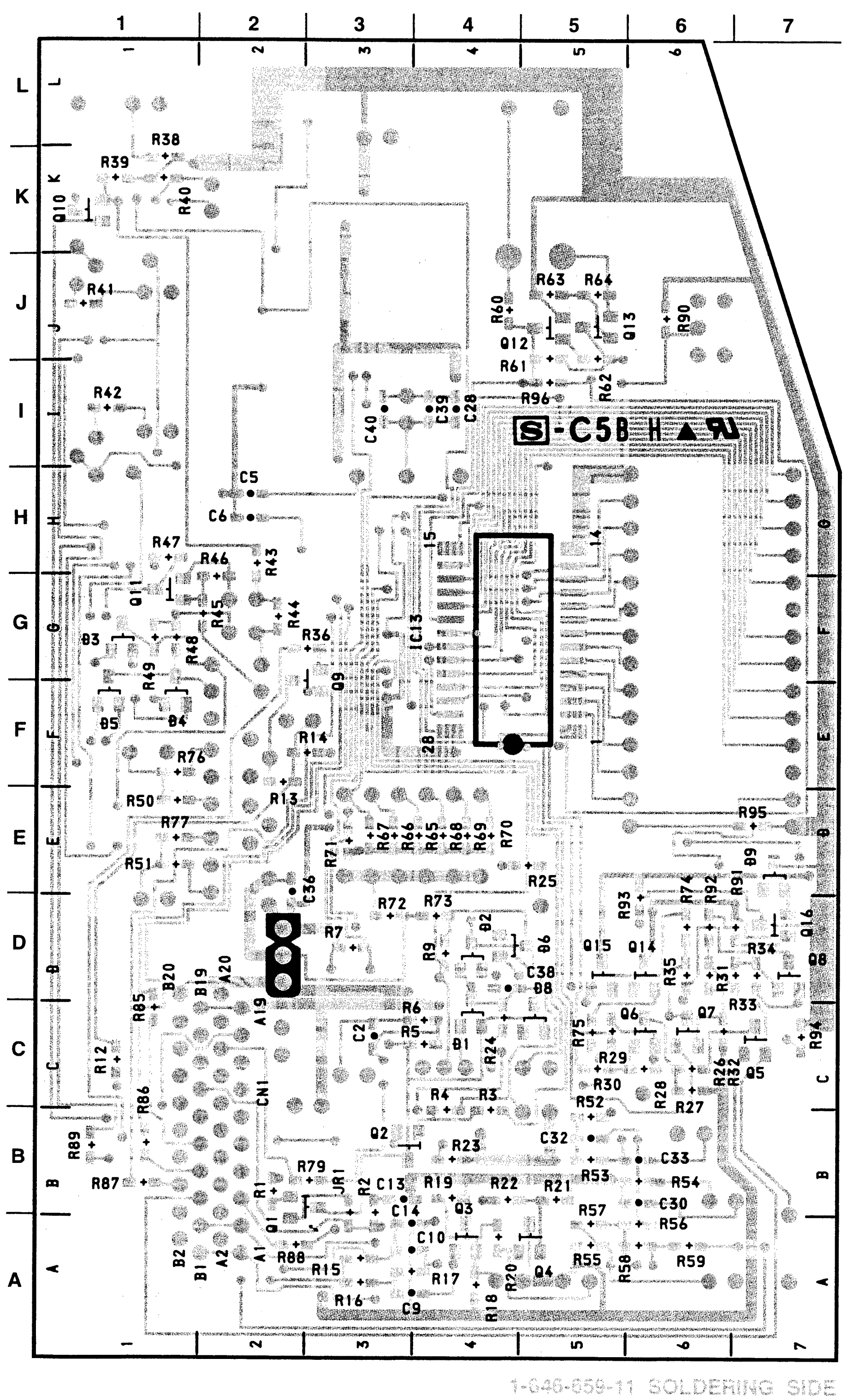
E2
TP7
C35
C19
IC24
C18
IC4
TP3
IC20
C20
S3
CAM B
CAM A
H.BLKG PHASE
TP4
RV1
IC9
IC21
C21
IC23
L1
C29
TP8
IC22
C22
RV2
TP5
FH WIDTH
R10
X1
IC10
C23
IC11
C24
IC17
C25
RV3
C7
SP1
IC2
V.BLKG WIDTH
RET
CAM
MAN
P
EXT
P SP2
C26
IC12
LOT NO.
S1
RV4
H.BLKG WIDTH
SP3
C27
TP1
NOR
GAIN
AUTO
RET
N
IC1
IC18
IC14
IC19
C1
IC16
TP6
C37
CCU
S2
CCU/RM
C3
C8
C17
C15
C16
C31
A NO.
IC3
JAPAN
IF-423
1-646-659
CN1
TP2
E1
C34
IC15
C12
C11
S NO.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R40
Q10
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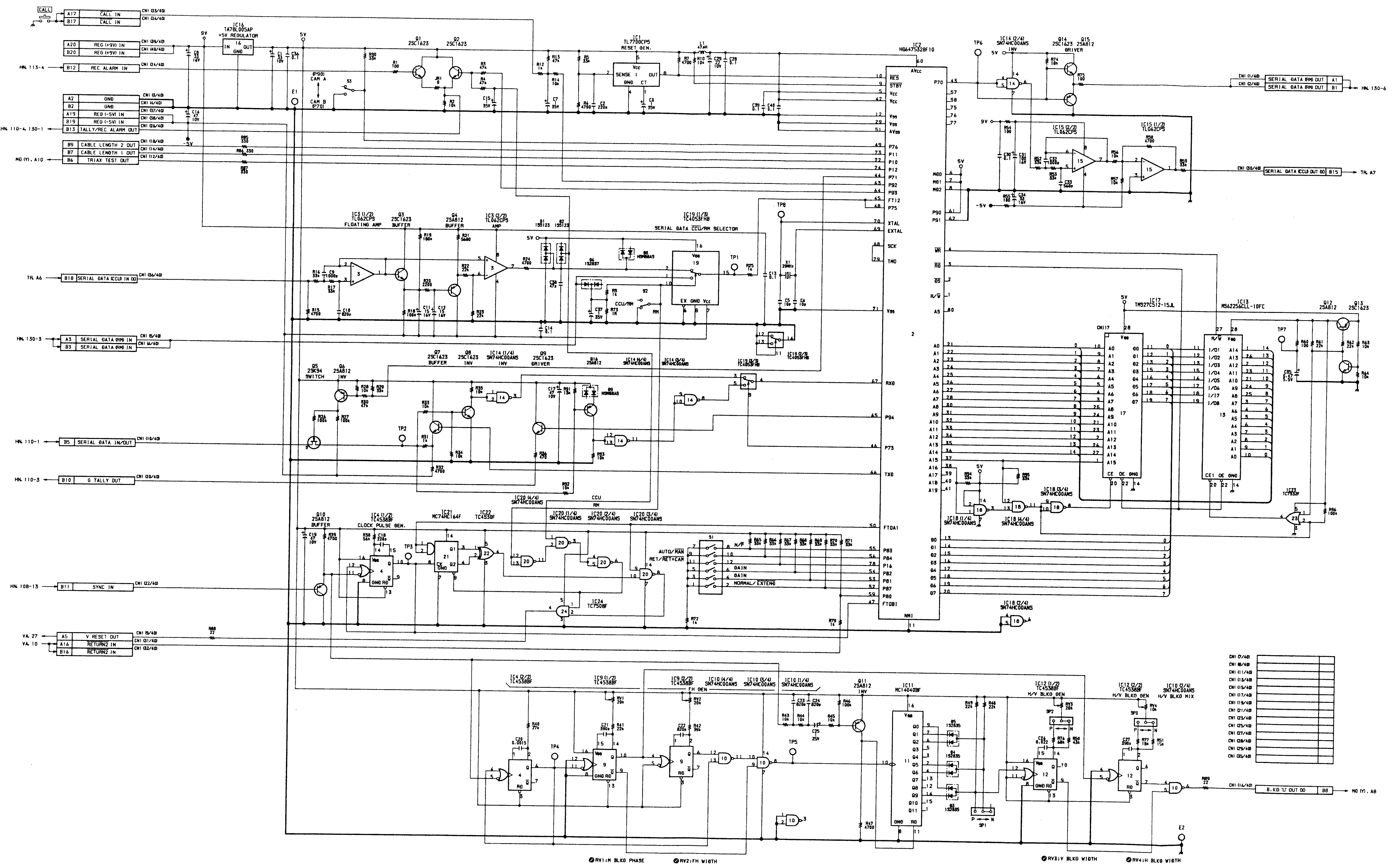
R63
R64
R60
Q12
Q13
R90
R61
R62
R42
R96
C39
C28
C40
S-C5B
C5
C6
R47
R46
R43
Q11
R45
R44
R36
IC13
Q9
R48
R49
R14
R76
R13
R50
R77
R95
R51
R71
R67
R66
R65
R68
R69
R70
R25
R72
R73
R7
C36
R9
R93
R74
R92
R91
Q15
Q14
R34
Q16
Q8
R35
R31
C38
R6
R5
R33
Q7
Q6
R85
R12
R86
B20
B19
A20
A19
CN1
C2
R24
R75
R29
R30
R28
R27
R26
R32
Q5
R94
R4
R3
R52
Q2
R23
C32
C33
R89
R87
R79
R1
R2
C13
R19
R22
R21
R53
R54
C14
Q3
R57
C30
R56
B2
B1
A2
A1
Q1
R88
C10
R15
R17
R20
Q4
R55
R58
R59
R16
C9
R18
1-646-659-11 SOLDERING SIDE

IF-423 (1-646-659-11)

CN1	A-2C	TP1	D-5C
		TP2	A-7C
D1	C-4S	TP3	L-1C
D2	D-4S	TP4	J-1C
D3	G-1S	TP5	H-1C
D4	F-1S	TP6	C-6C
D5	F-1S	TP7	L-4C
D6	D-5S	TP8	I-3C
D8	D-5S		
D9	E-7S	X1	H-3C
E1	A-7C		
E2	L-5C		
IC1	D-3C		
IC2	F-4C		
IC3	B-4C		
IC4	L-1C		
IC9	J-1C		
IC10	H-2C		
IC11	G-1C		
IC12	F-1C		
IC13	G-4S		
IC14	D-5C		
IC15	A-6C		
IC16	D-2C		
IC18	D-7C		
IC19	D-4C		
IC20	K-3C		
IC21	J-3C		
IC22	I-3C		
IC23	I-5C		
IC24	L-2C		
Q1	A-2S		
Q2	B-3S		
Q3	B-4S		
Q4	A-5S		
Q5	C-7S		
Q6	C-6S		
Q7	C-6S		
Q8	D-7S		
Q9	F-3S		
Q10	K-1S		
Q11	G-1S		
Q12	J-4S		
Q13	J-5S		
Q14	D-6S		
Q15	D-5S		
Q16	D-7S		
RV1	J-1C		
RV2	I-1C		
RV3	F-2C		
RV4	E-2C		
SP1	F-2C		
SP2	F-1C		
SP3	E-1C		
S1	E-4C		
S2	C-4C		
S3	J-6C		

IF-423 BOARD

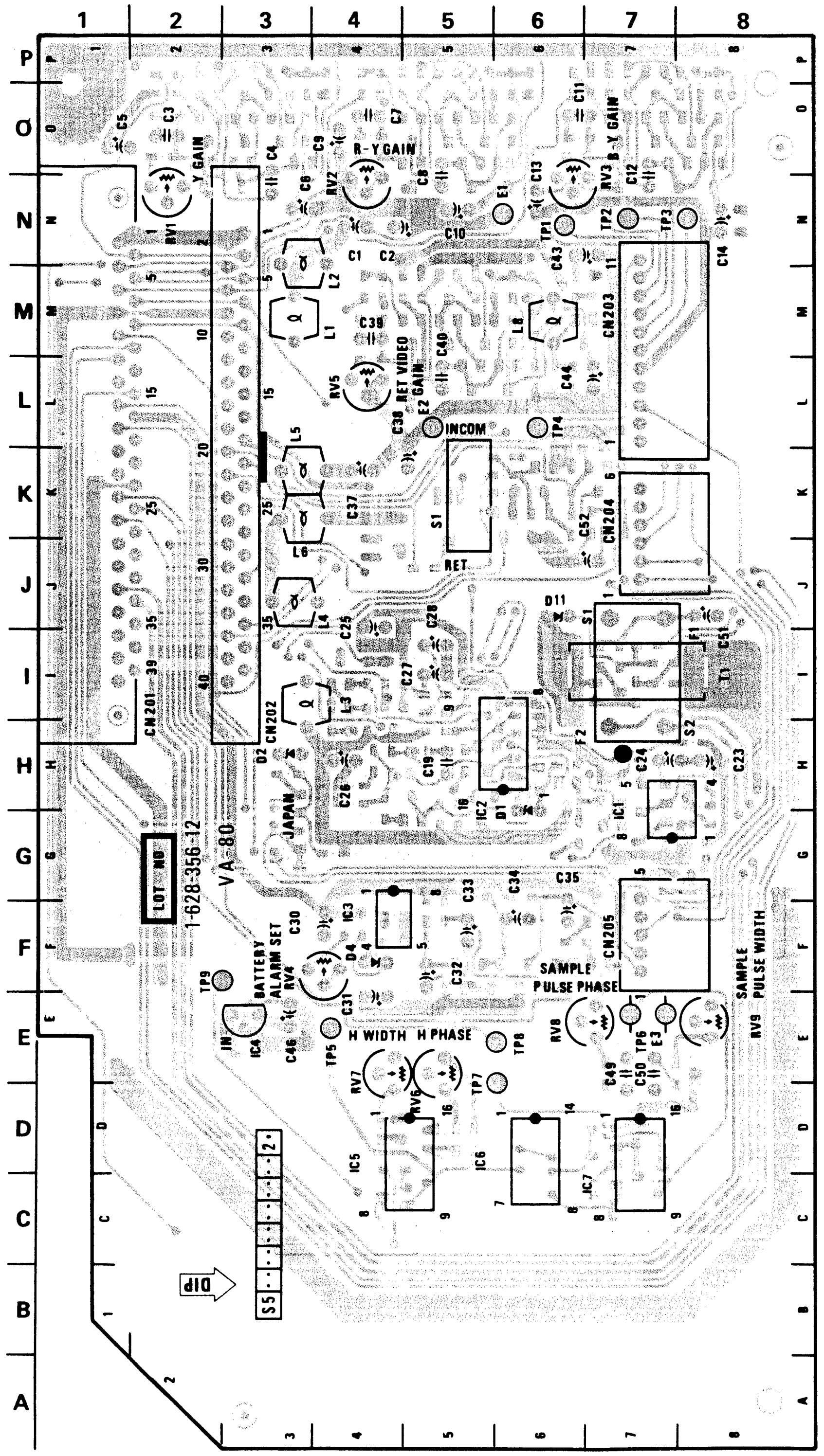

CALL
CALL IN
REG (+9V) IN
REC ALARM IN
GND
REG (-5V) IN
TALLY/REC ALARM OUT
CABLE LENGTH 2 OUT
CABLE LENGTH 1 OUT
TRIAX TEST OUT
SERIAL DATA (CCU) IN (X)
SERIAL DATA (RM) IN
SERIAL DATA IN/OUT
G TALLY OUT
SYNC IN
V RESET OUT
RETURN2 IN
RETURN1 IN
IC16 TA78L005AP +5V REGULATOR
Q1 2SC1623
Q2 2SC1623
IC1 TL7700CPS RESET GEN.
IC2 HD6475328F10
IC14 (2/4) SN74HC00ANS INV
Q14 2SC1623
Q15 2SA812
DRIVER
SERIAL DATA (RM) OUT
SERIAL DATA (CCU) OUT (X)
IC15 (1/2) TL062CPS
IC15 (2/2) TL062CPS
IC3 (1/2) TL062CPS FLOATING AMP
Q3 2SC1623 BUFFER
Q4 2SA812 BUFFER
IC3 (2/2) TL062CPS AMP
IC19 (1/3) TC4053FNB SERIAL DATA CCU/RM SELECTOR
CCU/RM
Q5 2SK94 SWITCH
Q6 2SA812 INV
Q7 2SC1623 BUFFER
Q8 2SC1623 INV
IC14 (1/4) SN74HC00ANS INV
Q9 2SC1623 DRIVER
IC17 TMS27C512-15JL
IC13 M5M5256CLL-10FC
Q12 2SA812
Q13 2SC1623
Q10 2SA812 BUFFER
IC4 (1/2) TC4538BF CLOCK PULSE GEN.
IC21 MC74HC164F
IC22 TC4S30F
IC20 SN74HC00ANS
IC24 TC7S08F
AUTO/MAN
RET/RET+CAM
GAIN
NORMAL/EXTEND
IC18 SN74HC00ANS
IC23 TC7S32F
IC4 (2/2) TC4538BF
IC9 (1/2) TC4538BF
IC9 (2/2) TC4538BF FH GEN
IC10 SN74HC00ANS
Q11 2SA812 INV
IC11 MC14040BF
IC12 (1/2) TC4538BF H/V BLKG GEN
IC12 (2/2) TC4538BF H/V BLKG GEN
H/V BLKG MIX
B.KG 'L' OUT (X)
RV1:H BLKG PHASE
RV2:FH WIDTH
RV3:V BLKG WIDTH
RV4:H BLKG WIDTH
A
B
C
D
E
F
G
H
1
2
3
4
5

IF-423 BOARD
CA-55A (UC, J)
CA-55AP (EK)
BKP-9551 (UC, J)
BKP-9551P (EK)
B-W(A55A-IF423/H) S3

VA-80 BORAD

VA-80 (1-628-356-12)

CN201	I-1C	Q21	N-8S
	I-1S	Q22	H-5S
CN202	I-3C	Q23	H-5S
	I-3S	Q24	H-6S
CN203	M-7C	Q25	H-5S
	M-7S	Q26	H-6S
CN204	K-7C	Q27	H-7S
	K-7S	Q28	G-7S
CN205	F-7C	Q29	H-3S
	F-7S	Q30	I-4S
		Q31	I-5S
D1	G-6C	Q32	I-4S
D2	H-3C	Q33	F-5S
D3	G-3S	Q34	F-6S
D4	F-4C	Q35	F-7S
D5	F-5S	Q38	L-5S
D6	F-6S	Q39	M-5S
D7	F-7S	Q40	M-5S
D8	K-5S	Q41	M-5S
D9	C-7S	Q42	L-5S
D10	C-7S	Q43	M-5S
D11	J-6C	Q44	L-6S
		Q45	M-6S
E1	N-6C	Q46	C-4S
E2	L-5C	Q47	D-7S
E3	E-7C	Q48	I-7S
		Q49	K-6S
IC1	G-7C	Q50	K-6S
IC2	H-6C	Q51	K-7S
IC3	F-4C	Q52	K-5S
IC4	E-3C	Q53	G-8S
IC5	D-5C		
IC6	D-6C	RV1	N-2C
IC7	D-7C	RV2	N-4C
		RV3	N-6C
Q1	N-2S	RV4	F-4C
Q2	O-2S	RV5	L-4C
Q3	O-3S	RV6	E-5C
Q4	O-3S	RV7	E-4C
Q5	N-3S	RV8	E-7C
Q6	O-3S	RV9	E-8C
Q7	N-3S		
Q8	N-5S	S1	K-5C
Q9	O-5S		K-5S
Q10	O-5S		
Q11	O-5S	TP1	N-6C
Q12	N-5S	TP2	N-7C
Q13	O-5S	TP3	N-8C
Q14	N-6S	TP4	L-6C
Q15	N-7S	TP5	E-4C
Q16	O-7S	TP6	E-7C
Q17	O-7S	TP7	E-6C
Q18	O-7S	TP8	E-6C
Q19	N-7S	TP9	F-3C
Q20	O-8S		


1
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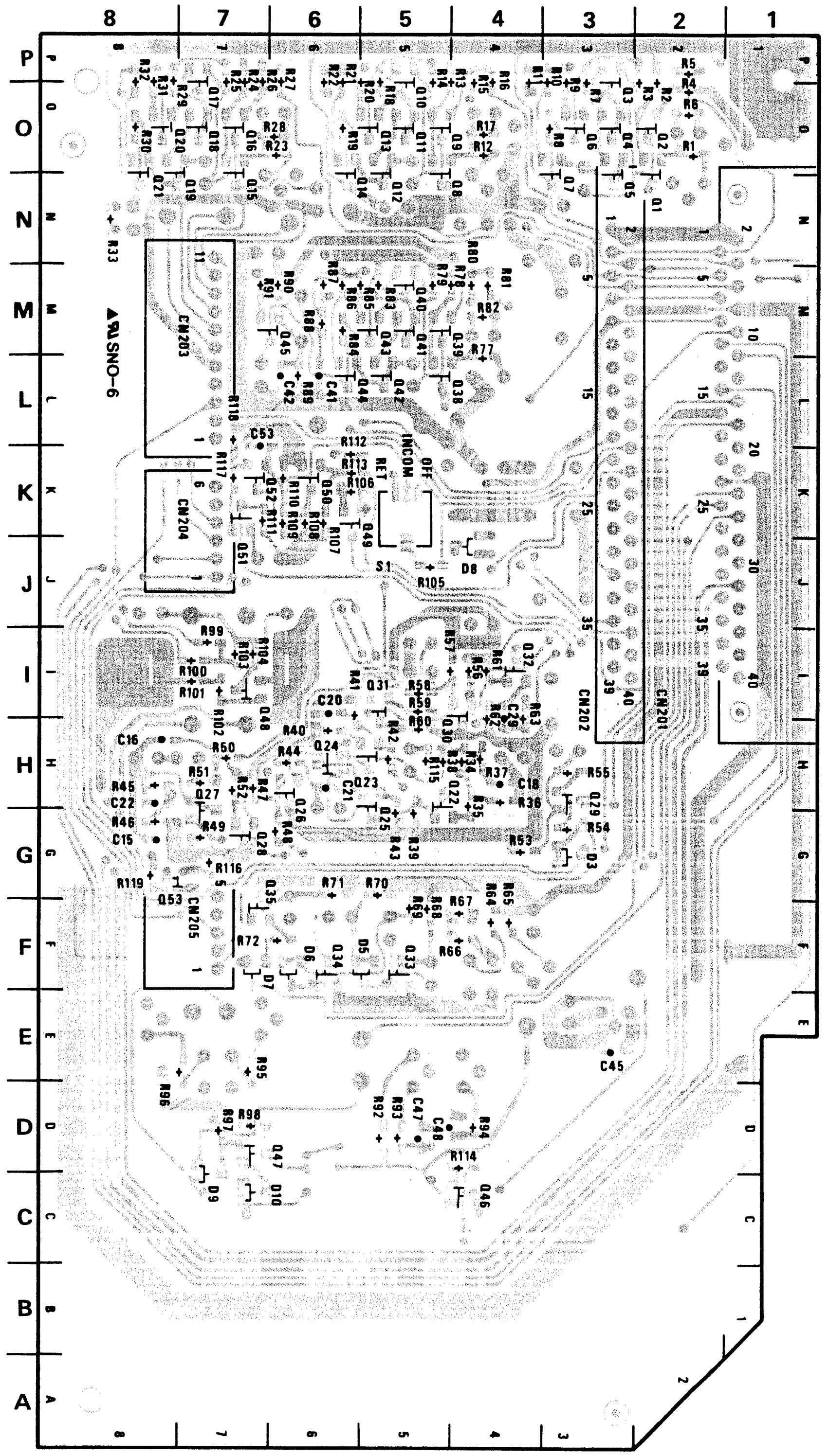
3
4
5
6
7
8
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
Y GAIN
R-Y GAIN
B-Y GAIN
RET VIDEO GAIN
INCOM
RET
CN201
CN202
CN203
CN204
CN205
LOT NO
1-628-356-12
VA-80
JAPAN
BATTERY ALARM SET
SAMPLE PULSE PHASE
SAMPLE PULSE WIDTH
H WIDTH
H PHASE
DIP
S5


8
7
6
5
4
3
2
1
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
INCOM
RET
OFF
CN201
CN202
CN203
CN204
CN205

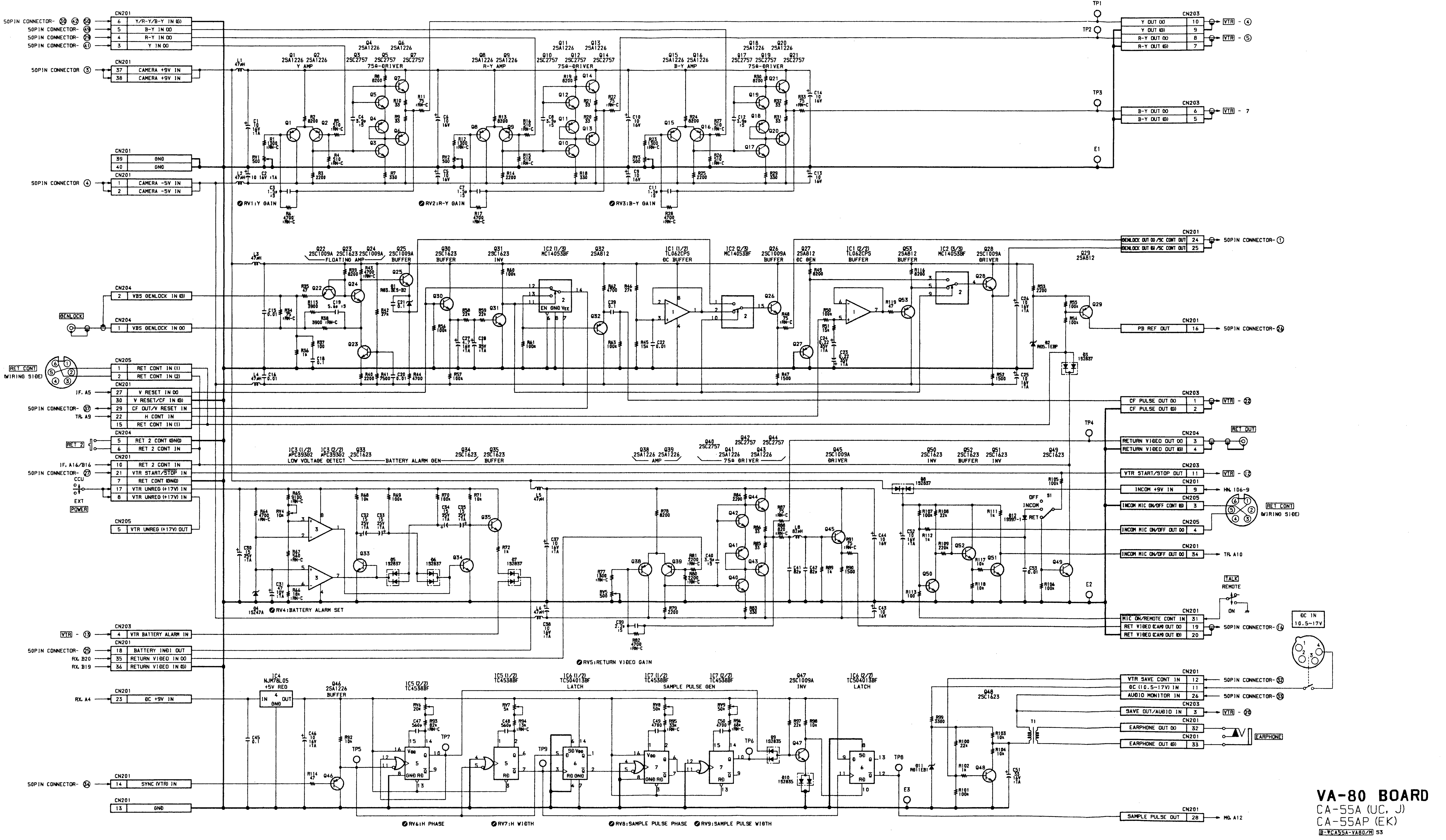
1-628-356-12 SOLDERING SIDE

VA-80 (1-628-356-12)

CN201	I-1C	Q21	N-8S
	I-1S	Q22	H-5S
CN202	I-3C	Q23	H-5S
	I-3S	Q24	H-6S
CN203	M-7C	Q25	H-5S
	M-7S	Q26	H-6S
CN204	K-7C	Q27	H-7S
	K-7S	Q28	G-7S
CN205	F-7C	Q29	H-3S
	F-7S	Q30	I-4S
		Q31	I-5S
D1	G-6C	Q32	I-4S
D2	H-3C	Q33	F-5S
D3	G-3S	Q34	F-6S
D4	F-4C	Q35	F-7S
D5	F-5S	Q38	L-5S
D6	F-6S	Q39	M-5S
D7	F-7S	Q40	M-5S
D8	K-5S	Q41	M-5S
D9	C-7S	Q42	L-5S
D10	C-7S	Q43	M-5S
D11	J-6C	Q44	L-6S
		Q45	M-6S
E1	N-6C	Q46	C-4S
E2	L-5C	Q47	D-7S
E3	E-7C	Q48	I-7S
		Q49	K-6S
IC1	G-7C	Q50	K-6S
IC2	H-6C	Q51	K-7S
IC3	F-4C	Q52	K-5S
IC4	E-3C	Q53	G-8S
IC5	D-5C		
IC6	D-6C	RV1	N-2C
IC7	D-7C	RV2	N-4C
		RV3	N-6C
Q1	N-2S	RV4	F-4C
Q2	O-2S	RV5	L-4C
Q3	O-3S	RV6	E-5C
Q4	O-3S	RV7	E-4C
Q5	N-3S	RV8	E-7C
Q6	O-3S	RV9	E-8C
Q7	N-3S		
Q8	N-5S	S1	K-5C
Q9	O-5S		K-5S
Q10	O-5S		
Q11	O-5S	TP1	N-6C
Q12	N-5S	TP2	N-7C
Q13	O-5S	TP3	N-8C
Q14	N-6S	TP4	L-6C
Q15	N-7S	TP5	E-4C
Q16	O-7S	TP6	E-7C
Q17	O-7S	TP7	E-6C
Q18	O-7S	TP8	E-6C
Q19	N-7S	TP9	F-3C
Q20	O-8S		

VA-80 BOARD

RET VIDEO, INCOM GEN
BATTERY ALARM GEN
SAMPLE PULSE GEN
EARPHONE DRIVER
Y, R-Y, B-Y AMP
GENLOCK AMP
RET VIDEO AMP


CN201
Y/R-Y/B-Y IN (G)
B-Y IN (X)
R-Y IN (X)
Y IN (X)
CAMERA +9V IN
CAMERA -5V IN
GND
Q1 2SA1226 Q2 2SA1226 Y AMP
75Ω-DRIVER
R-Y AMP
B-Y AMP
RV1:Y GAIN
RV2:R-Y GAIN
RV3:B-Y GAIN
TP1
TP2
TP3
E1
CN203
Y OUT (X)
Y OUT (G)
R-Y OUT (X)
R-Y OUT (G)
B-Y OUT (X)
B-Y OUT (G)
VTR
GENLOCK
CN204
VBS GENLOCK IN (G)
VBS GENLOCK IN (X)
FLOATING AMP
BUFFER
INV
8C BUFFER
8C GEN
DRIVER
GENLOCK OUT (X)/SC CONT OUT
GENLOCK OUT (G)/SC CONT OUT
PB REF OUT
50PIN CONNECTOR
RET CONT
(WIRING SIDE)
CN205
RET CONT IN (1)
RET CONT IN (2)
V RESET IN (X)
V RESET/CF IN (G)
CF OUT/V RESET IN
H CONT IN
RET 2
RET 2 CONT (GND)
RET 2 CONT IN
RET 2 CONT IN
VTR START/STOP IN
RET CONT (GND)
VTR UNREG (+17V) IN
VTR UNREG (+17V) OUT
CCU
EXT
POWER
CF PULSE OUT (X)
CF PULSE OUT (G)
TP4
RETURN VIDEO OUT (X)
RETURN VIDEO OUT (G)
RET OUT
VTR START/STOP OUT
INCOM +9V IN
INCOM MIC ON/OFF CONT (G)
INCOM MIC ON/OFF OUT (X)
INCOM MIC ON/OFF OUT (X)
IC3 (1/2) μPC393G2 LOW VOLTAGE DETECT
BATTERY ALARM GEN
AMP
75Ω DRIVER
OFF
INCOM
RET
S1
RV4:BATTERY ALARM SET
RV5:RETURN VIDEO GAIN
E2
VTR BATTERY ALARM IN
BATTERY (NG) OUT
RETURN VIDEO IN (X)
RETURN VIDEO IN (G)
MIC ON/REMOTE CONT IN
RET VIDEO (CAM) OUT (X)
RET VIDEO (CAM) OUT (G)
TALK
REMOTE
ON
DC IN 10.5-17V
8C +9V IN
IC4 NJM78L05 +5V REG
BUFFER
LATCH
SAMPLE PULSE GEN
INV
LATCH
TP5
TP6
TP7
TP8
TP9
E3
SYNC (VTR) IN
GND
VTR SAVE CONT IN
DC (10.5-17V) IN
AUDIO MONITOR IN
SAVE OUT/AUDIO IN
EARPHONE OUT (X)
EARPHONE OUT (G)
EARPHONE
SAMPLE PULSE OUT
RV6:H PHASE
RV7:H WIDTH
RV8:SAMPLE PULSE PHASE
RV9:SAMPLE PULSE WIDTH

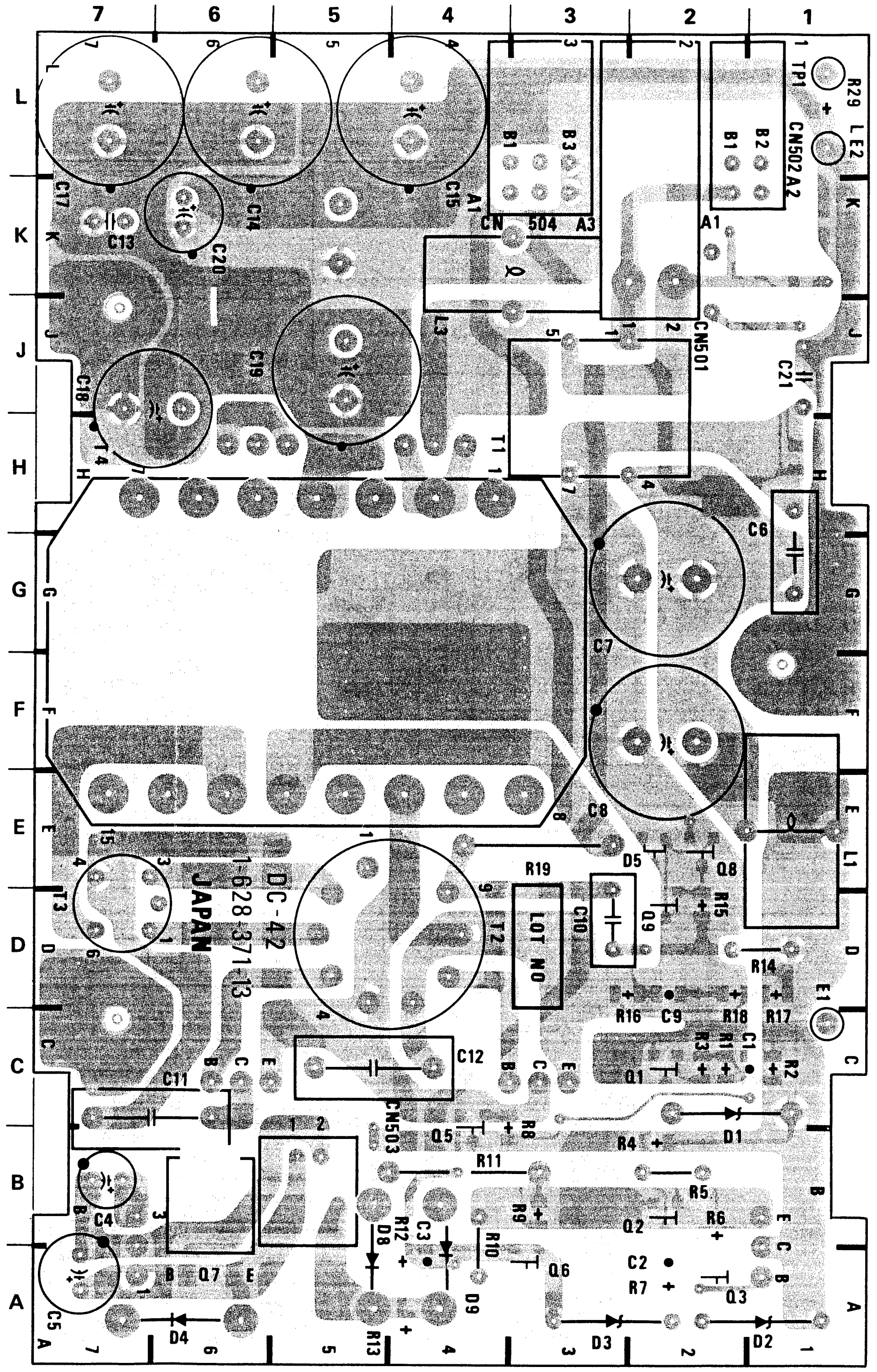
VA-80 BOARD
CA-55A (UC, J)
CA-55AP (EK)

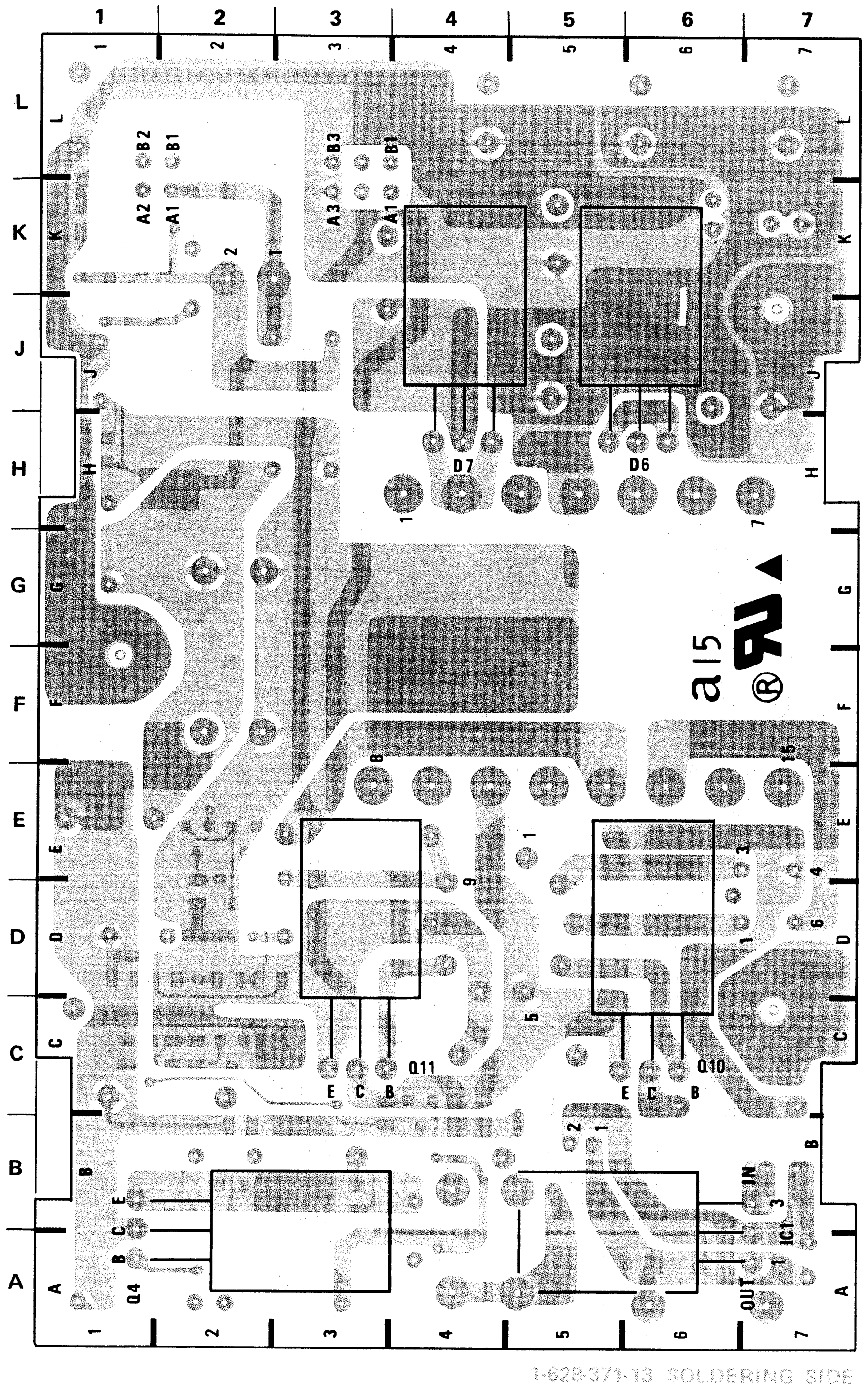
CA-55A (J, UC)
CA-55AP (EK)

DC-42 BOARD

DC-42 (1-628-371-13)

CN501	K-2C
CN502	L-1C
CN503	B-5C
CN504	L-3C
D1	C-2C
D2	A-1C
D3	A-3C
D4	A-6C
D5	E-2C
D6	J-6S
D7	J-4S
D8	A-5C
D9	A-4C
E1	C-1C
E2	L-1C
IC1	A-6S
Q1	C-2C
Q2	B-2C
Q3	A-2C
Q4	A-2S
Q5	B-4C
Q6	A-3C
Q7	B-6C
Q8	E-2C
Q9	D-2C
Q10	D-6S
Q11	D-3S
T1	J-3C
T2	D-4C
T3	D-7C
T4	G-5C
TP1	L-1C

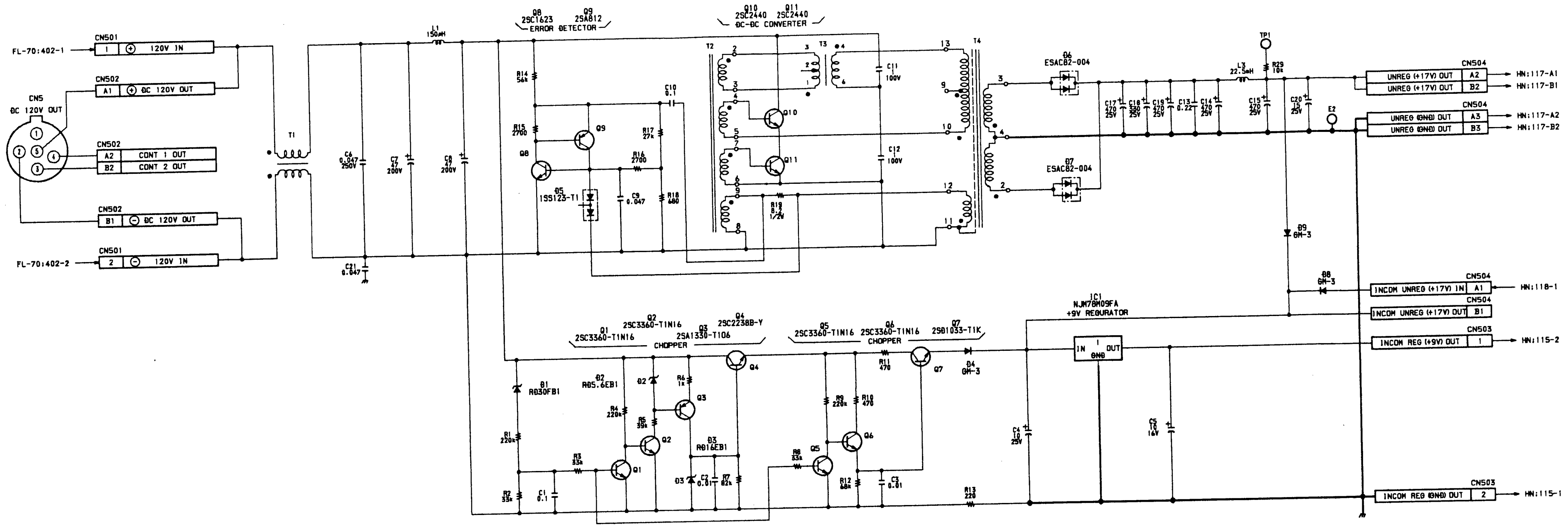

7
6
5
4
3
2
1
L
K
J
H
G
F
E
D
C
B
A
R29
LE2
TP1
CN502A2
B1
B2
B3
CN 504
A1
A3
C13
C14
C15
C17
C20
C18
C19
C21
L3
CN501
T1
T4
C6
C7
C8
D5
Q8
R15
C10
Q9
R19
LOT NO
DC-42
1-628-371-13
JAPAN
T2
T3
R14
L1
E1
R16
C9
R18
R17
R3
R1
C1
R2
Q1
C11
C12
CN503
Q5
R8
R4
D1
R11
R9
R5
R6
Q2
C4
Q7
D8
C3
R12
R10
Q6
C2
R7
Q3
C5
D4
R13
D9
D3
D2
B C E


1
2
3
4
5
6
7
L
K
J
H
G
F
E
D
C
B
A
A2
B2
A1
B1
B3
A3
D7
D6
a15
Q11
Q10
E C B
IN
IC1
OUT
Q4
1-628-371-13 SOLDERING SIDE

DC-42 (1-628-371-13)

CN501	K-2C
CN502	L-1C
CN503	B-5C
CN504	L-3C
D1	C-2C
D2	A-1C
D3	A-3C
D4	A-6C
D5	E-2C
D6	J-6S
D7	J-4S
D8	A-5C
D9	A-4C
E1	C-1C
E2	L-1C
IC1	A-6S
Q1	C-2C
Q2	B-2C
Q3	A-2C
Q4	A-2S
Q5	B-4C
Q6	A-3C
Q7	B-6C
Q8	E-2C
Q9	D-2C
Q10	D-6S
Q11	D-3S
T1	J-3C
T2	D-4C
T3	D-7C
T4	G-5C
TP1	L-1C

DC-42 BOARD
DC-DC CONVERTER

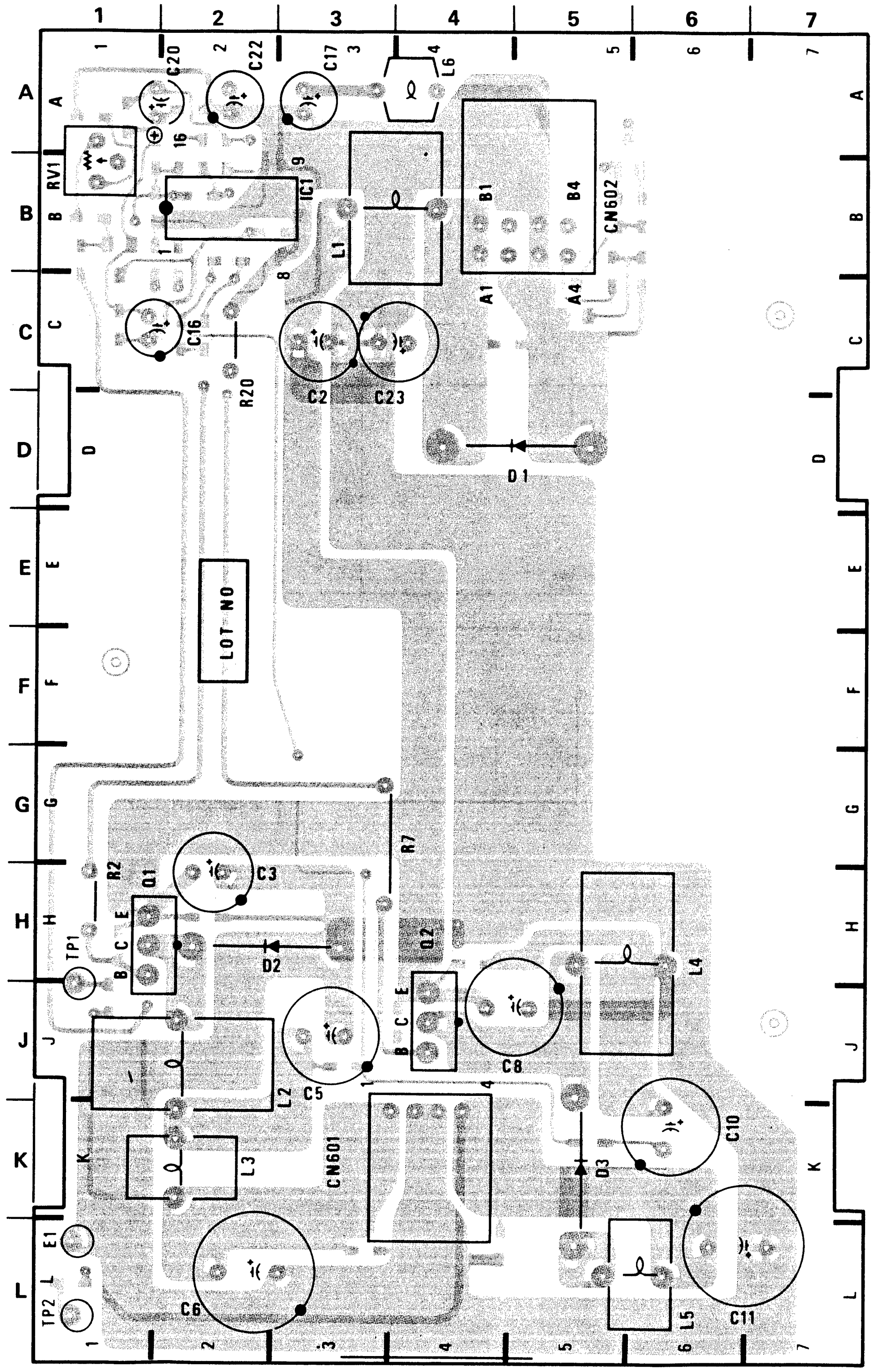

FL-70:402-1
CN501
1 ⊕ 120V IN
CN502
A1 ⊕ DC 120V OUT
CN5
DC 120V OUT
① ② ③ ④ ⑤
CN502
A2 CONT 1 OUT
B2 CONT 2 OUT
CN502
B1 ⊖ DC 120V OUT
FL-70:402-2
CN501
2 ⊖ 120V IN
T1
C6 0.047 250V
C7 47 200V
C8 47 200V
C21 0.047
L1 150mH
Q8 2SC1623
Q9 2SA812
ERROR DETECTOR
R14 56k
R15 2700
Q8
Q9
D5 1SS123-T1
C9 0.047
R16 2700
R17 27k
R18 680
C10 0.1
Q10 2SC2440
Q11 2SC2440
DC-DC CONVERTER
T2
T3
Q10
Q11
R19 8.2 1/2W
C11 1 100V
C12 1 100V
T4
D6 ESAC82-004
D7 ESAC82-004
C17 470 25V
C18 330 25V
C19 470 25V
C13 0.22
C14 470 25V
L3 22.5mH
TP1
R29 10k
C15 470 25V
C20 15 25V
E2
CN504
UNREG (+17V) OUT A2
UNREG (+17V) OUT B2
HN:117-A1
HN:117-B1
CN504
UNREG (GND) OUT A3
UNREG (GND) OUT B3
HN:117-A2
HN:117-B2
D9 GM-3
D8 GM-3
CN504
INCOM UNREG (+17V) IN A1
HN:118-1
CN504
INCOM UNREG (+17V) OUT B1
CN503
INCOM REG (+9V) OUT 1
HN:115-2
IC1 NJM78M09FA
+9V REGURATOR
IN 1 OUT GND
C4 10 25V
C5 10 16V
CN503
INCOM REG (GND) OUT 2
HN:115-1
Q1 2SC3360-T1N16
Q2 2SC3360-T1N16
Q3 2SA1330-T106
Q4 2SC2238B-Y
CHOPPER
Q5 2SC3360-T1N16
Q6 2SC3360-T1N16
Q7 2SD1033-T1K
CHOPPER
D1 RD30FB1
D2 RD5.6EB1
D2
R6 1k
Q3
R4 220k
R5 39k
Q2
Q1
R1 220k
R2 33k
C1 0.1
R3 33k
D3 RD16EB1
D3
C2 0.01
R7 82k
Q4
R9 220k
R10 470
R8 33k
Q5
Q6
R12 68k
C3 0.01
R11 470
Q7
D4 GM-3
R13 220

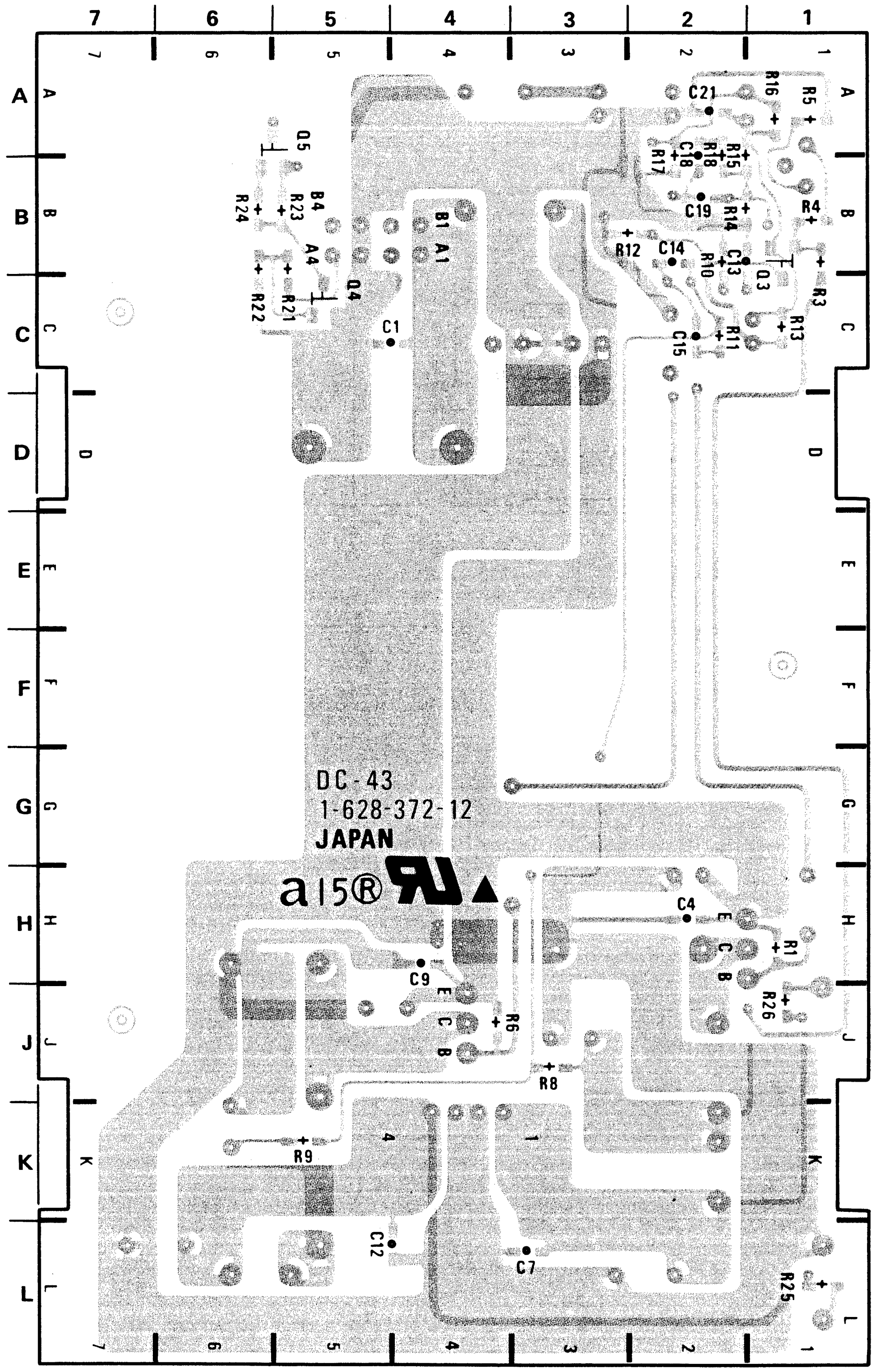
DC-42 BOARD
CA-55A (UC, J)
CA-55AP (EK)
B-¥CA55A-DC42/M S3

DC-43 BOARD

DC-43 (1-628-372-12)

CN601	K-4C
CN602	B-5C
D1	D-5C
D2	H-3C
D3	K-5C
E1	L-1C
IC1	B-2C
Q1	H-2C
Q2	J-4C
Q3	B-1S
Q4	C-5S
Q5	A-5S
RV1	B-1C
TP1	J-1C
TP2	L-1C


1 2 3 4 5 6 7
A B C D E F G H J K L
RV1
C20
C22
C17
L6
16
IC1
9
1
8
L1
B1
B4
A1
A4
CN602
C16
R20
C2
C23
D1
LOT NO
R7
R2
Q1
E C B
C3
D2
TP1
Q2
L4
C5
L2
C8
CN601
C10
D3
L3
E1
TP2
C6
L5
C11

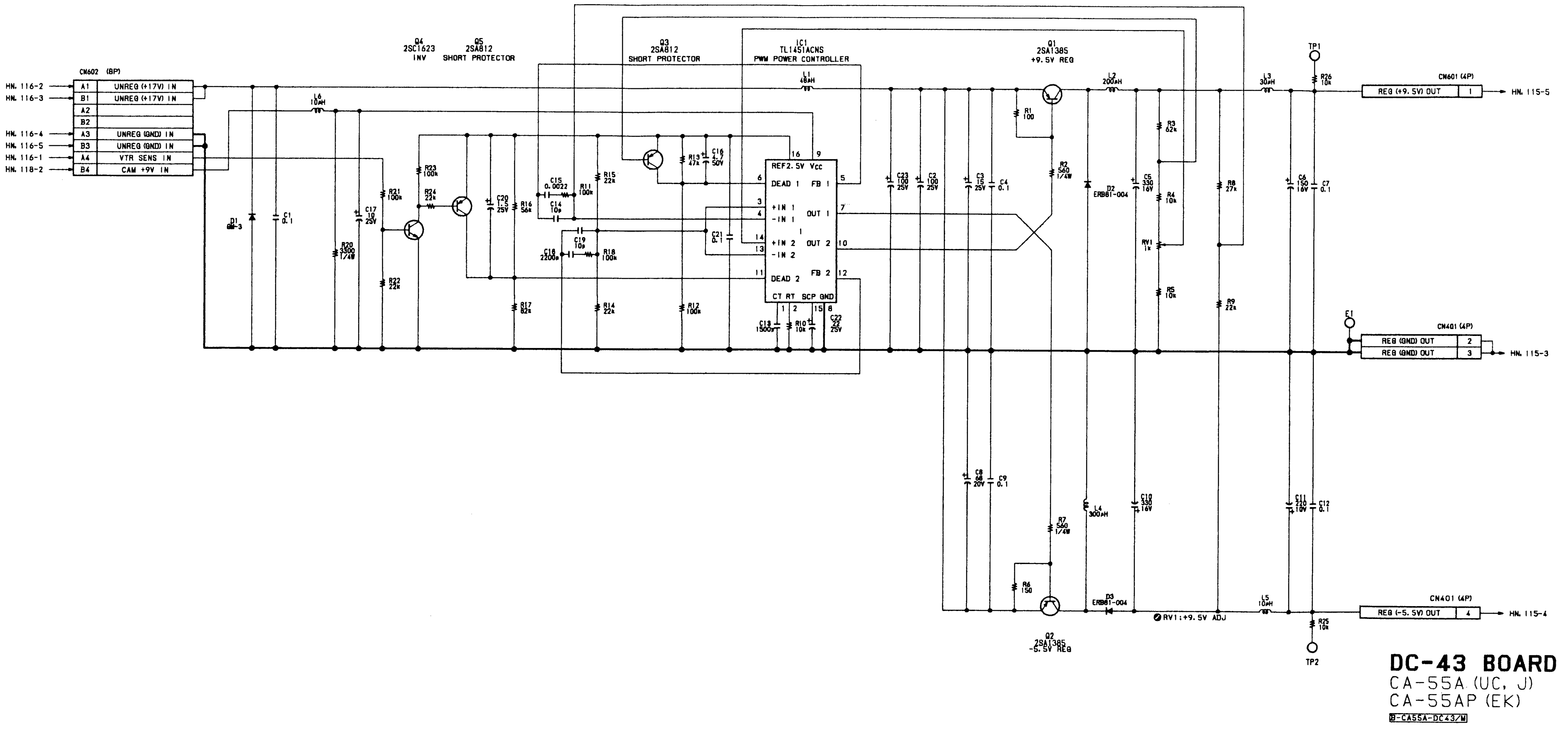

7 6 5 4 3 2 1
A B C D E F G H J K L
Q5
R24
R23
B4
A4
Q4
R22
R21
B1
A1
C1
R16
R5
C21
C8
R18
R15
R17
C19
R14
R4
R12
C14
R10
C13
Q3
R3
C15
R11
R13
DC-43
1-628-372-12
JAPAN
a15®
C4
E C B
R1
R26
C9
R6
R8
R9
C12
C7
R25

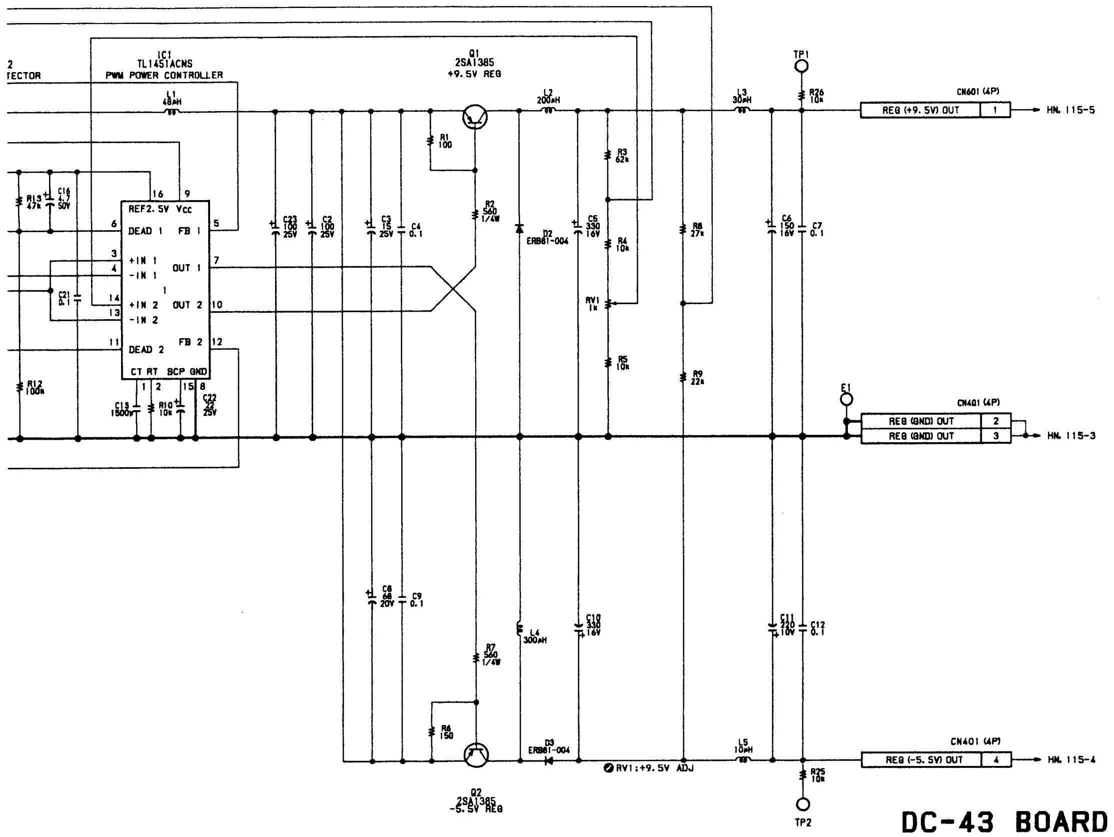
1-628-372-12 SOLDERING SIDE

DC-43 (1-628-372-12)

CN601	K-4C
CN602	B-5C
D1	D-5C
D2	H-3C
D3	K-5C
E1	L-1C
IC1	B-2C
Q1	H-2C
Q2	J-4C
Q3	B-1S
Q4	C-5S
Q5	A-5S
RV1	B-1C
TP1	J-1C
TP2	L-1C

DC-43 BOARD
SWITCHING REGULATOR


CN602 (8P)
HN. 116-2
HN. 116-3
HN. 116-4
HN. 116-5
HN. 116-1
HN. 118-2
A1 UNREG (+17V) IN
B1 UNREG (+17V) IN
A2
B2
A3 UNREG (GND) IN
B3 UNREG (GND) IN
A4 VTR SENS IN
B4 CAM +9V IN
D1 BM-3
C1 0.1
L6 10μH
C17 10 25V
R20 3300 1/4W
R21 100k
R22 22k
Q4 2SC1623 INV
Q5 2SA812 SHORT PROTECTOR
R23 100k
R24 22k
C20 1.5 25V
R16 56k
R17 82k
C15 0.0022
R11 100k
C14 10p
C19 10p
C18 2200p
R18 100k
R15 22k
R14 22k
Q3 2SA812 SHORT PROTECTOR
R13 47k
C16 4.7 50V
R12 100k
C21 0.1
IC1 TL1451ACNS PWM POWER CONTROLLER
REF2.5V Vcc
DEAD 1
FB 1
+IN 1
-IN 1
OUT 1
+IN 2
-IN 2
OUT 2
DEAD 2
FB 2
CT RT SCP GND
16 9 6 5 3 4 7 14 13 10 11 12 1 2 15 8
C13 1500p
R10 10k
C22 22 25V
L1 48μH
C23 100 25V
C2 100 25V
C3 15 25V
C4 0.1
Q1 2SA1385 +9.5V REG
R1 100
R2 560 1/4W
L2 200μH
D2 ERB81-004
C5 330 16V
R3 62k
R4 10k
RV1 1k
R5 10k
R8 27k
R9 22k
L3 30μH
C6 150 16V
C7 0.1
TP1
R26 10k
CN601 (4P)
REG (+9.5V) OUT 1
HN. 115-5
E1
CN401 (4P)
REG (GND) OUT 2
REG (GND) OUT 3
HN. 115-3
C8 68 20V
C9 0.1
R7 560 1/4W
R6 150
Q2 2SA1385 -5.5V REG
L4 300μH
D3 ERB81-004
C10 330 16V
⊘RV1:+9.5V ADJ
L5 10μH
C11 220 10V
C12 0.1
R25 10k
TP2
CN401 (4P)
REG (-5.5V) OUT 4
HN. 115-4
DC-43 BOARD
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-DC43/M

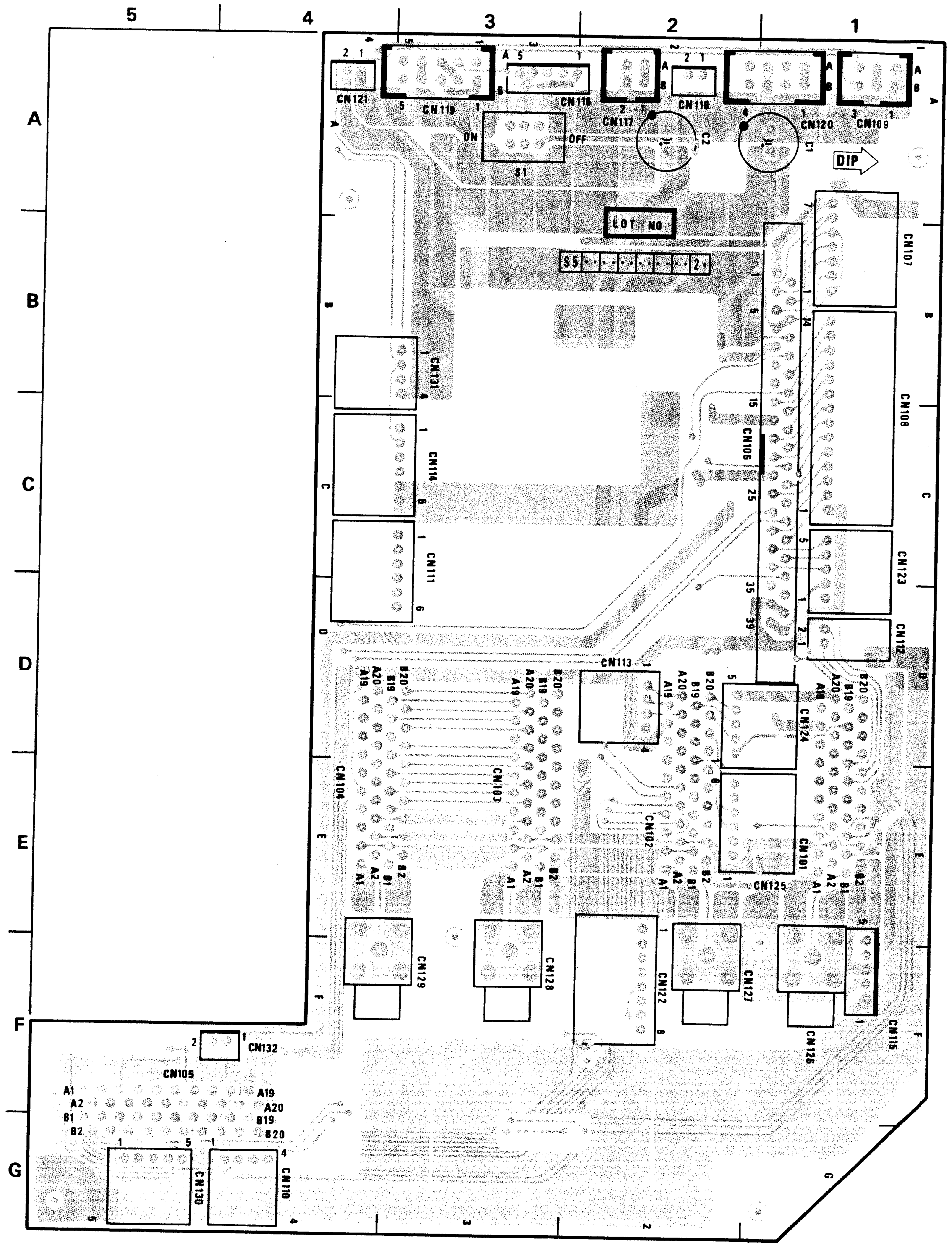

2
TECTOR
IC1
TL1451ACNS
PWM POWER CONTROLLER
L1
48μH
R13
47k
C16
4.7
50V
16
9
REF2.5V Vcc
6
DEAD 1
FB 1
5
3
4
+IN 1
-IN 1
OUT 1
7
1
C21
0.1
14
13
+IN 2
-IN 2
OUT 2
10
11
DEAD 2
FB 2
12
CT RT SCP GND
1 2 15 8
R12
100k
C13
1500p
R10
10k
C22
22
25V
C23
100
25V
C2
100
25V
C3
15
25V
C4
0.1
Q1
2SA1385
+9.5V REG
R1
100
R2
560
1/4W
D2
ERB81-004
L2
200μH
C5
330
16V
R3
62k
R4
10k
RV1
1k
R5
10k
R8
27k
R9
22k
L3
30μH
TP1
R26
10k
C6
150
16V
C7
0.1
CN601 (4P)
REG (+9.5V) OUT
1
HN. 115-5
E1
CN401 (4P)
REG (GND) OUT
2
REG (GND) OUT
3
HN. 115-3
C8
68
20V
C9
0.1
R7
560
1/4W
L4
300μH
C10
330
16V
C11
220
10V
C12
0.1
R6
150
D3
ERB81-004
RV1:+9.5V ADJ
L5
10μH
CN401 (4P)
REG (-5.5V) OUT
4
HN. 115-4
R25
10k
TP2
Q2
2SA1385
-5.5V REG

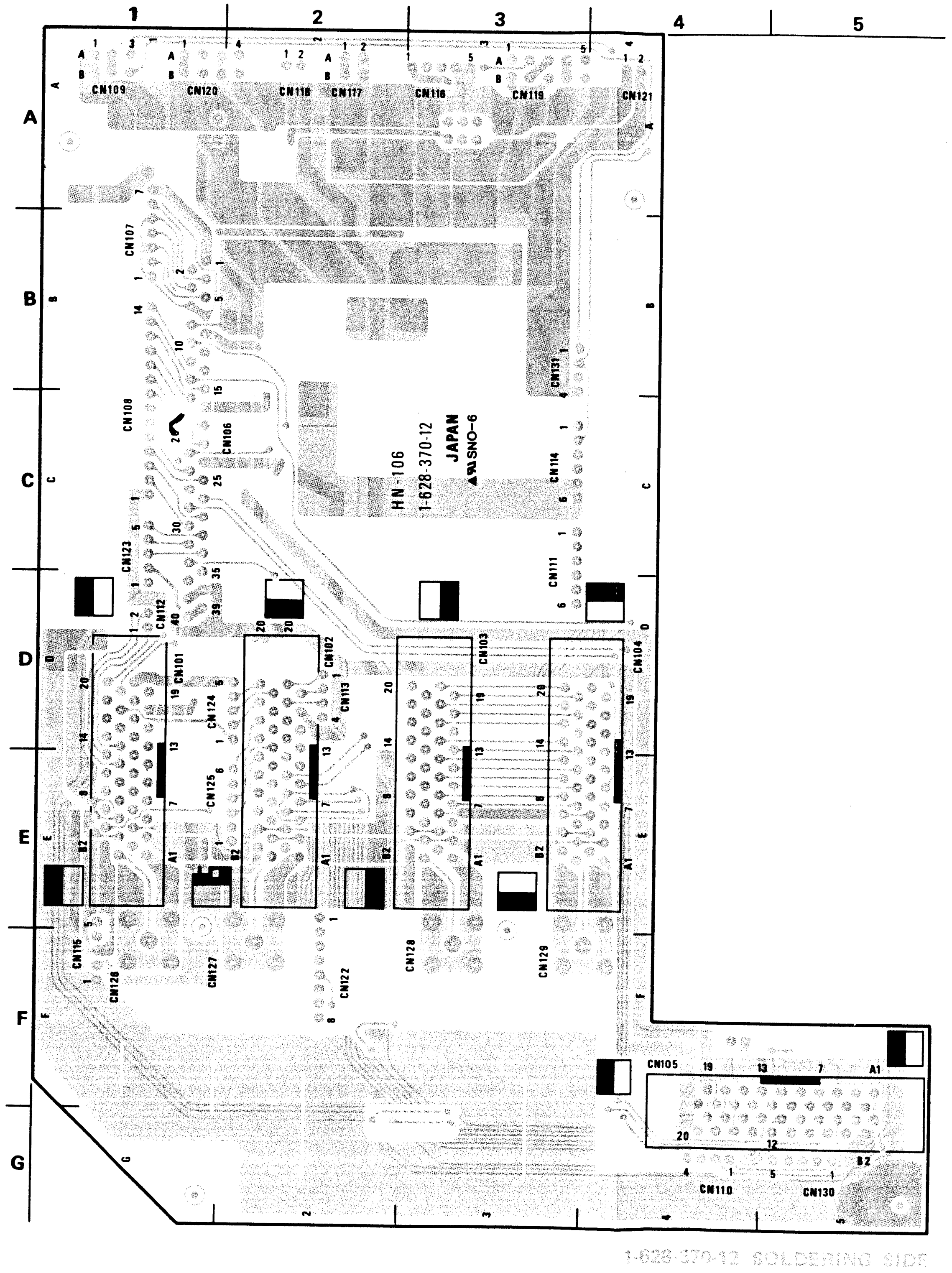
DC-43 BOARD
CA-55A (UC, J)
CA-55AP (EK)
B-CA55A-DC43/M

HN-106 BOARD

HN-106 (1-628-370-12)

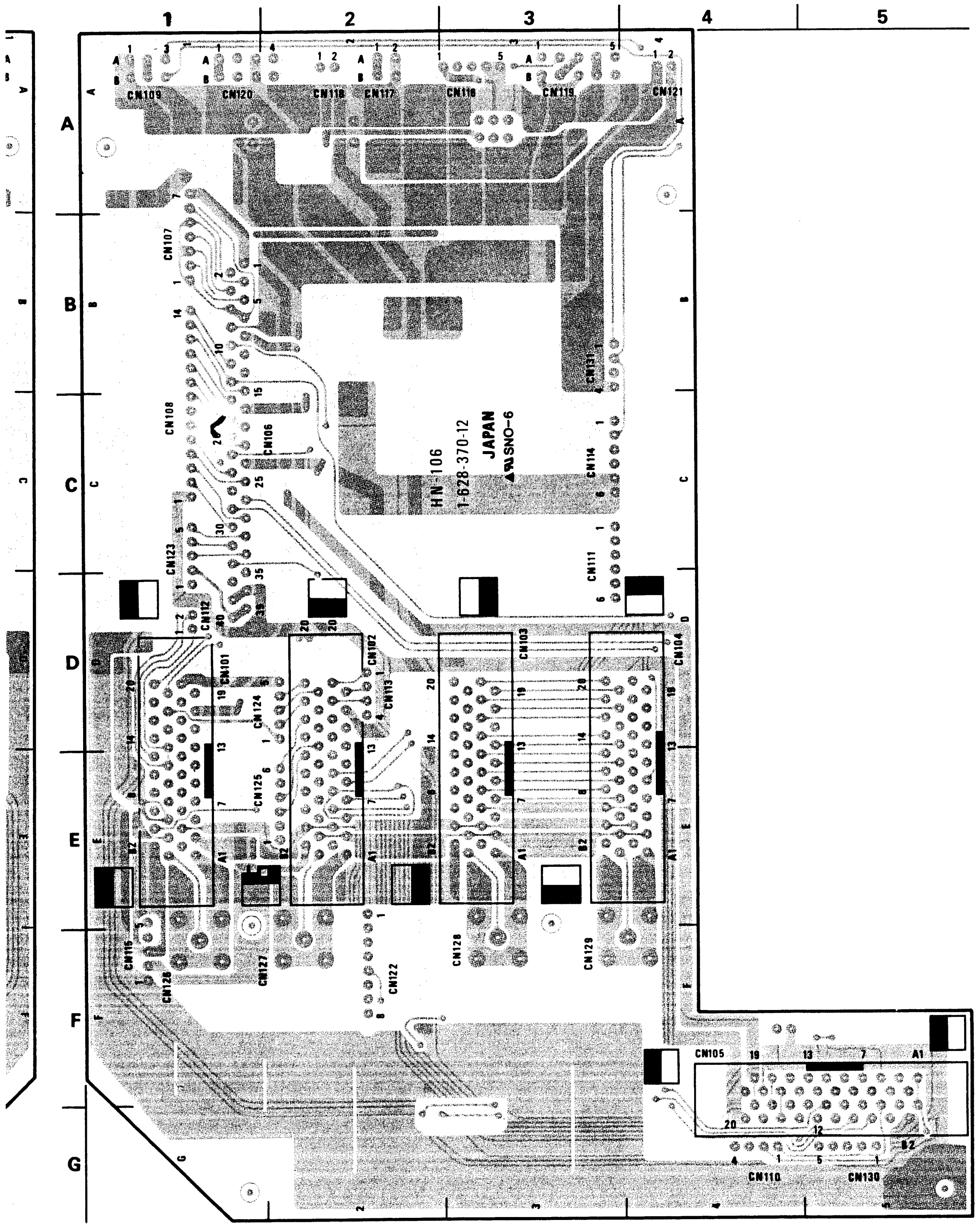
CN101	E-1C E-1S
CN102	E-2C E-2S
CN103	E-3C E-3S
CN104	E-4C E-4S
CN105	F-4C F-4S
CN106	C-1C C-1S
CN107	B-1C B-1S
CN108	C-1C C-1S
CN109	A-1C A-1S
CN110	G-4C G-4S
CN111	C-4C C-3S
CN112	D-1C D-1S
CN113	D-2C D-2S
CN114	C-4C C-4S
CN115	F-1C F-1S
CN116	A-3C A-3S
CN117	A-2C A-2S
CN118	A-2C A-2S
CN119	A-3C A-3S
CN120	A-1C A-1S
CN121	A-4C A-4S
CN122	F-2C F-2S
CN123	C-1C C-1S
CN124	D-1C D-1S
CN125	E-1C E-1S
CN126	F-1C F-1S
CN127	F-2C F-2S
CN128	F-3C F-3S
CN129	F-3C F-3S
CN130	G-5C G-5S
CN131	B-4C B-4S
CN132	F-4C


5
4
3
2
1
A
B
C
D
E
F
G
CN121
CN119
CN116
CN117
CN118
CN120
CN109
S1
ON
OFF
C1
C2
DIP
LOT NO
S5
CN107
CN131
CN108
CN106
CN114
CN111
CN123
CN112
CN113
CN104
CN103
CN102
CN124
CN101
CN125
CN129
CN128
CN122
CN127
CN126
CN115
CN132
CN105
CN130
CN110
A1
A2
B1
B2
A19
A20
B19
B20


1
2
3
4
5
A
B
C
D
E
F
G
CN109
CN120
CN118
CN117
CN116
CN119
CN121
CN107
CN108
CN106
CN131
HN-106
1-628-370-12
JAPAN
SNO-6
CN114
CN111
CN123
CN112
CN101
CN124
CN125
CN102
CN113
CN103
CN104
CN115
CN126
CN127
CN122
CN128
CN129
CN105
CN110
CN130
A1
B2
1-628-370-12 SOLDERING SIDE

HN-106 (1-628-370-12)

CN101	E-1C E-1S
CN102	E-2C E-2S
CN103	E-3C E-3S
CN104	E-4C E-4S
CN105	F-4C F-4S
CN106	C-1C C-1S
CN107	B-1C B-1S
CN108	C-1C C-1S
CN109	A-1C A-1S
CN110	G-4C G-4S
CN111	C-4C C-3S
CN112	D-1C D-1S
CN113	D-2C D-2S
CN114	C-4C C-4S
CN115	F-1C F-1S
CN116	A-3C A-3S
CN117	A-2C A-2S
CN118	A-2C A-2S
CN119	A-3C A-3S
CN120	A-1C A-1S
CN121	A-4C A-4S
CN122	F-2C F-2S
CN123	C-1C C-1S
CN124	D-1C D-1S
CN125	E-1C E-1S
CN126	F-1C F-1S
CN127	F-2C F-2S
CN128	F-3C F-3S
CN129	F-3C F-3S
CN130	G-5C G-5S
CN131	B-4C B-4S
CN132	F-4C

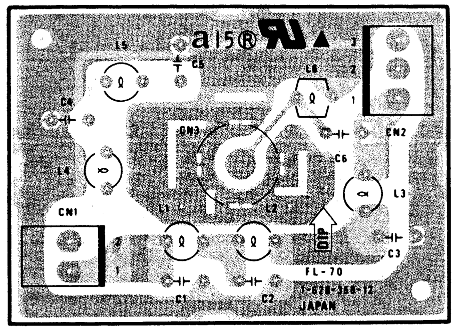

1
2
3
4
5
A
B
C
D
E
F
G
CN109
CN120
CN118
CN117
CN116
CN119
CN121
CN107
CN108
CN106
CN123
CN112
CN101
CN124
CN125
CN102
CN113
CN103
CN104
CN111
CN114
CN131
CN115
CN126
CN127
CN122
CN128
CN129
CN105
CN110
CN130
HN-106
1-628-370-12
JAPAN
SNO-6

1-628-370-12 SOLDERING SIDE

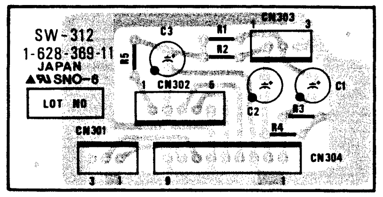
HN-106 (1-628-370-12)

CN101	E-1C E-1S
CN102	E-2C E-2S
CN103	E-3C E-3S
CN104	E-4C E-4S
CN105	F-4C F-4S
CN106	C-1C C-1S
CN107	B-1C B-1S
CN108	C-1C C-1S
CN109	A-1C A-1S
CN110	G-4C G-4S
CN111	C-4C C-3S
CN112	D-1C D-1S
CN113	D-2C D-2S
CN114	C-4C C-4S
CN115	F-1C F-1S
CN116	A-3C A-3S
CN117	A-2C A-2S
CN118	A-2C A-2S
CN119	A-3C A-3S
CN120	A-1C A-1S
CN121	A-4C A-4S
CN122	F-2C F-2S
CN123	C-1C C-1S
CN124	D-1C D-1S
CN125	E-1C E-1S
CN126	F-1C F-1S
CN127	F-2C F-2S
CN128	F-3C F-3S
CN129	F-3C F-3S
CN130	G-5C G-5S
CN131	B-4C B-4S
CN132	F-4C

FL-70 BOARD


L5
C5
L6
C4
CN3
CN2
C6
L4
L3
CN1
L1
L2
C1
C2
C3
FL-70
1-628-369-12
JAPAN

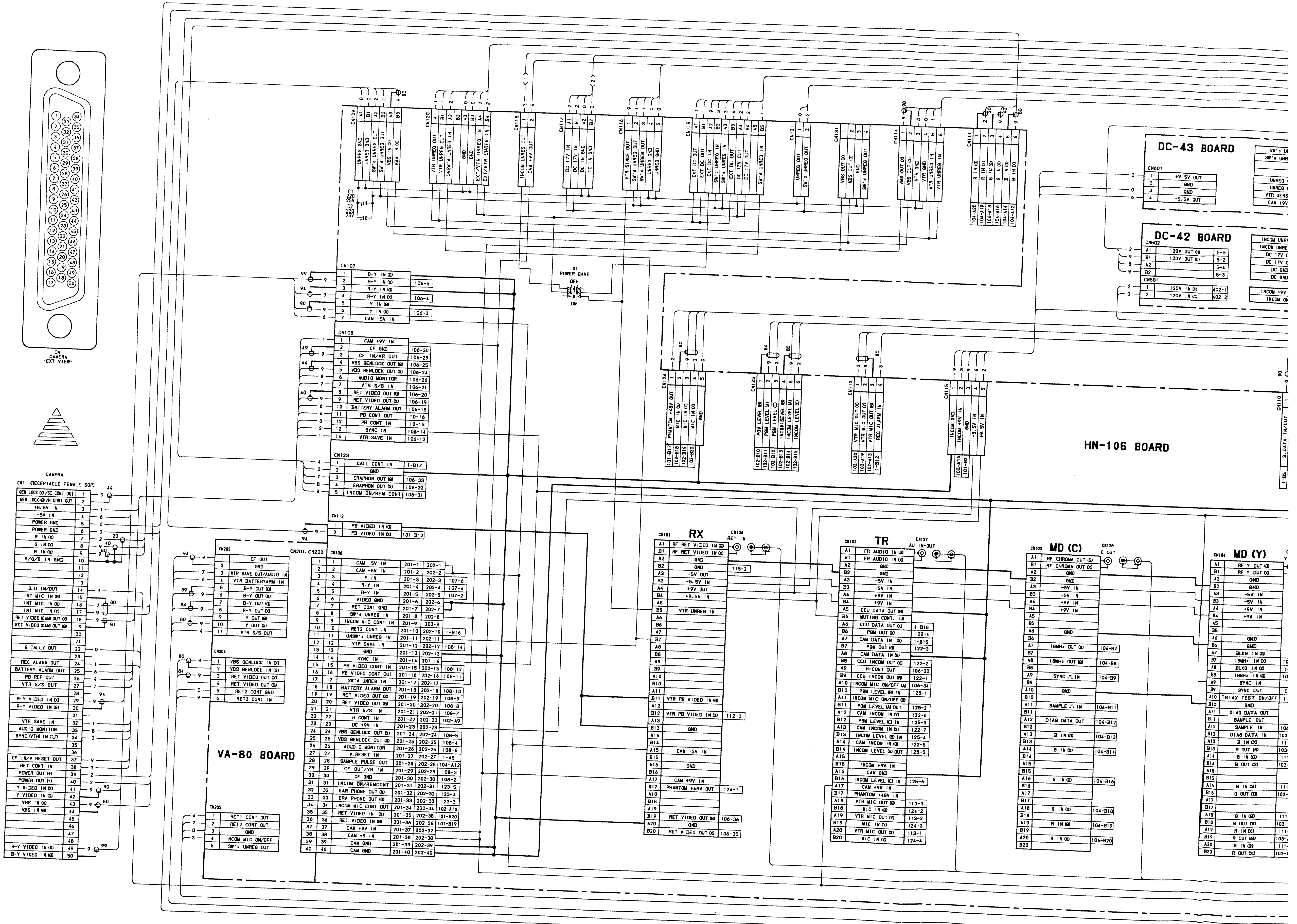
SW-312 BOARD

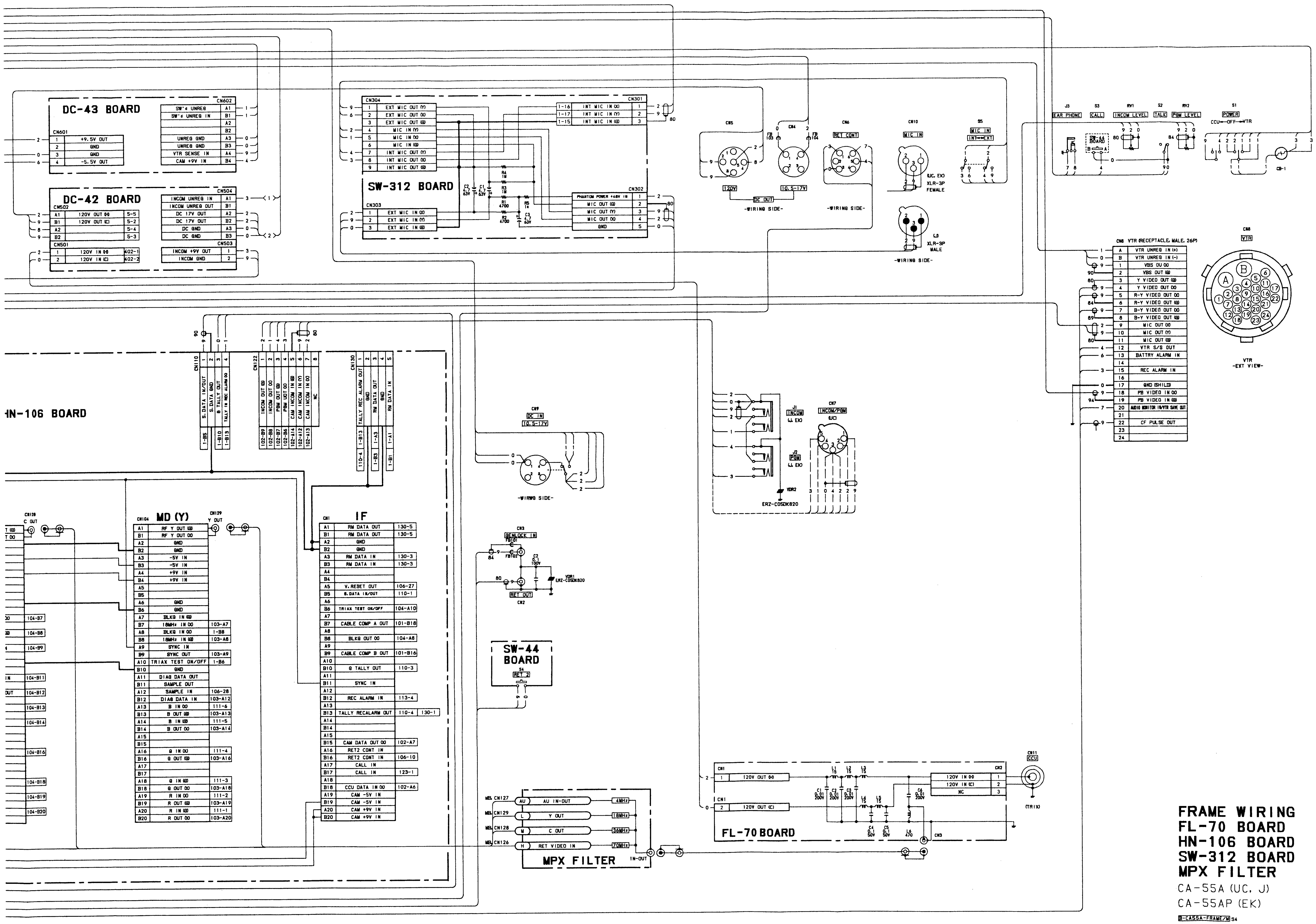

SW-312
1-628-369-11
JAPAN
SNO-6
LOT NO
C3
R1
R2
R5
CN303
CN302
C2
C1
R3
R4
CN301
CN304

1-628-369-11 COMPONENT SIDE

FRAME WIRING
FL-70 BOARD
HN-106 BOARD
SW-312 BOARD

SW-312 HN-106 FL-70 FRAME | FRAME FL-70 HN-106 SW-312


CN1
CAMERA
-EXT VIEW-
CAMERA
CN1 (RECEPTACLE FEMALE SOP)
CN107
CN108
CN123
CN112
CN109
CN120
CN118
CN117
CN116
CN119
CN121
CN131
CN114
CN111
S1
POWER SAVE
OFF
ON
DC-43 BOARD
CN601
DC-42 BOARD
CN502
CN501
CN124
CN125
CN113
CN115
CN110
HN-106 BOARD
VA-80 BOARD
CN203
CN204
CN205
CN201, CN202
CN106
RX
CN101
CN126
RET IN
TR
CN102
CN127
AU IN-OUT
MD (C)
CN103
CN128
C OUT
MD (Y)
CN104


DC-43 BOARD
CN601
CN602
DC-42 BOARD
CN502
CN504
CN501
CN503
SW-312 BOARD
CN304
CN301
CN303
CN302
HN-106 BOARD
CN110
CN122
CN130
MD (Y)
CN104
CN129
IF
CN1
CN9
DC IN
10.5-17V
-WIRING SIDE-
CN3
GENLOCK IN
RET OUT
CN2
SW-44 BOARD
RET 2
CN5
CN4
CN6
RET CONT
CN10
MIC IN
XLR-3P FEMALE
XLR-3P MALE
J1
INCOM
J2
PGM
CN7
INCOM/PGM
ERZ-C05DK820
J3
EAR PHONE
S3
CALL
RV1
INCOM LEVEL
S2
TALK
RV2
PGM LEVEL
S1
POWER
CCU—OFF—VTR
CN8 VTR (RECEPTACLE, MALE, 26P)
VTR
-EXT VIEW-
FL-70 BOARD
CN11
CCU
(TRIX)
MPX FILTER
IN-OUT
CN127
CN129
CN128
CN126
AU IN-OUT
Y OUT
C OUT
RET VIDEO IN
4MHz
18MHz
36MHz
70MHz

FRAME WIRING
FL-70 BOARD
HN-106 BOARD
SW-312 BOARD
MPX FILTER

CA-55A (UC, J)
CA-55AP (EK)

B-CA55A-FRAME/M S4

I J K L M N O P

CHASSIS ASSY

No.	Part No.	SP	Description
1	A-7513-900-A	o	MOUNTED CIRCUIT BOARD, FL-70
2	A-7603-111-A	s	TRIAX ASSY (FOR CA-55A;UC)
	A-7603-112-A	s	TRIAX ASSY (FOR CA-55A;J)
	A-7603-113-A	s	TRIAX ASSY (FOR CA-55AP)
3	X-2380-734-1	o	PLATE (RIGHT) ASSY, SIDE
4	X-2380-735-1	o	PLATE (LEFT) ASSY, SIDE
5	X-2380-736-1	o	CONNECTOR (B) SUB ASSY
6	X-3710-037-1	o	SUSPENSION ASSY (C)
7	1-237-981-11	s	RES, VAR, CARBON 20K "INCOM LEVEL"
8	1-507-251-99	s	JACK "EARPHONE"
9	1-507-676-00	s	JACK, PHONE "INCOM" "PGM" (FOR CA-55A;J, CA-55AP)
10	1-509-176-31	s	CONNECTOR, MALE 3P "MIC IN" (FOR CA-55A;J)
11	1-509-184-31	s	CONNECTOR, FEMALE 3P "MIC IN" (FOR CA-55A;UC, CA-55AP)
12	1-553-739-21	s	SWITCH, KEY BOARD "CALL" "RETURN 2"
13	1-561-233-21	s	CONNECTOR, FEMALE 6P "RET OUT"
14	1-561-781-21	s	CONNECTOR, BNC, FEMALE "GENLOCK IN"
15	1-561-844-00	s	CONNECTOR, COAXIAL, FEMALE "CCU" (FOR CA-55AP)
16	1-561-244-00	o	CONNECTOR, MALE 26P "VTR"
17	1-565-908-11	s	CONNECTOR, MALE 4P "DC IN"
18	1-563-907-11	s	CONNECTOR (D02 F) 50P
19	1-565-072-11	s	CONNECTOR, FEMALE, 4P "DC OUT"
20	1-565-797-11	s	CONNECTOR, DOUBLE COAXIAL, FEMALE "CCU" (FOR CA-55A;J)
21	1-565-800-11	o	CONNECTOR, FEMALE 5P "DC OUT"
22	1-565-801-11	s	CONNECTOR, DOUBLE COAXIAL, FEMALE "CCU" (FOR CA-55A;UC)
23	1-570-928-11	s	SWITCH, TOGGLE "POWER"
24	1-571-368-11	s	SWTCH, TOGGLE "TALK" "MIC IN"
25	1-628-369-11	o	PRINTED CIRCUIT BOARD, SW-312
26	2-122-059-01	o	SPRING
27	2-128-233-01	o	RETAINER (L), PC BOARD
28	2-128-234-01	o	SHEET, INSULATING, MPX
29	2-128-240-01	o	LABEL, GENLOCK
30	2-128-241-01	o	LABEL, VTR
31	2-128-243-01	o	PLATE, BOX, CONNECTOR
32	2-128-244-01	o	NUT (SW), PLATE
33	2-128-245-01	o	PLATE, (XLR), PHONE (FOR CA-55A;UC)
34	2-128-253-01	o	BRACKET, CONNECTOR
35	2-128-257-01	o	LABEL, POWER
36	2-128-258-01	o	LABEL, DC
37	2-128-265-01	o	BOX (B), CONNECTOR
38	2-128-269-01	o	BOX (T), CONNECTOR
39	2-132-244-01	o	SPACER
40	2-359-964-01	o	SCREW
41	2-359-980-01	s	PAD, CHEEK
42	2-361-586-00	o	PLATE(F)(1), CONNECTOR (FOR CA-55AP)
43	2-361-598-00	o	PLATE(K)(1), CONNECTOR (FOR CA-55A)
44	2-365-236-00	o	LUG (K), GROUND (FOR CA-55A;UC)
45	3-437-229-01	s	INSULATOR (B), JACK
46	3-657-627-00	s	KNOB (2)
47	3-657-841-51	o	SPACER (2X6)
48	3-664-213-00	o	SCREW, STOPPER
49	3-664-218-00	o	SHUE
50	3-664-228-00	o	PLATE, SPRING
51	3-673-018-11	s	SCREW, BLIND
52	3-676-125-00	o	PIN, STOPPER
53	3-676-244-11	o	COVER, SW
54	3-676-349-00	o	SHOE, V
55	3-676-352-00	s	CAP, C HOLDER
56	3-676-365-04	o	HOLDER, V CONNECTOR
57	3-676-369-00	o	NUT, SPACER
58	3-676-370-00	s	PIN, HOLDER, CN
59	3-676-371-00	o	NUT (S), PLATE
60	3-685-104-01	s	NUT (M6), CONTROL
61	3-685-115-01	s	CAP (6P), DROP PROTECTION
62	3-701-440-11	s	WASHER, 3.5
63	3-710-016-02	s	SCREW (M4X18), LID
64	3-849-405-00	s	COVER, EARPHONE JACK
65	7-627-553-78	s	SCREW, PRECISION +P2X10
66	7-627-556-78	s	SCREW, PRECISION +P2.6X6 TYPE1

SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components indentified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

   - This manual 's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present."

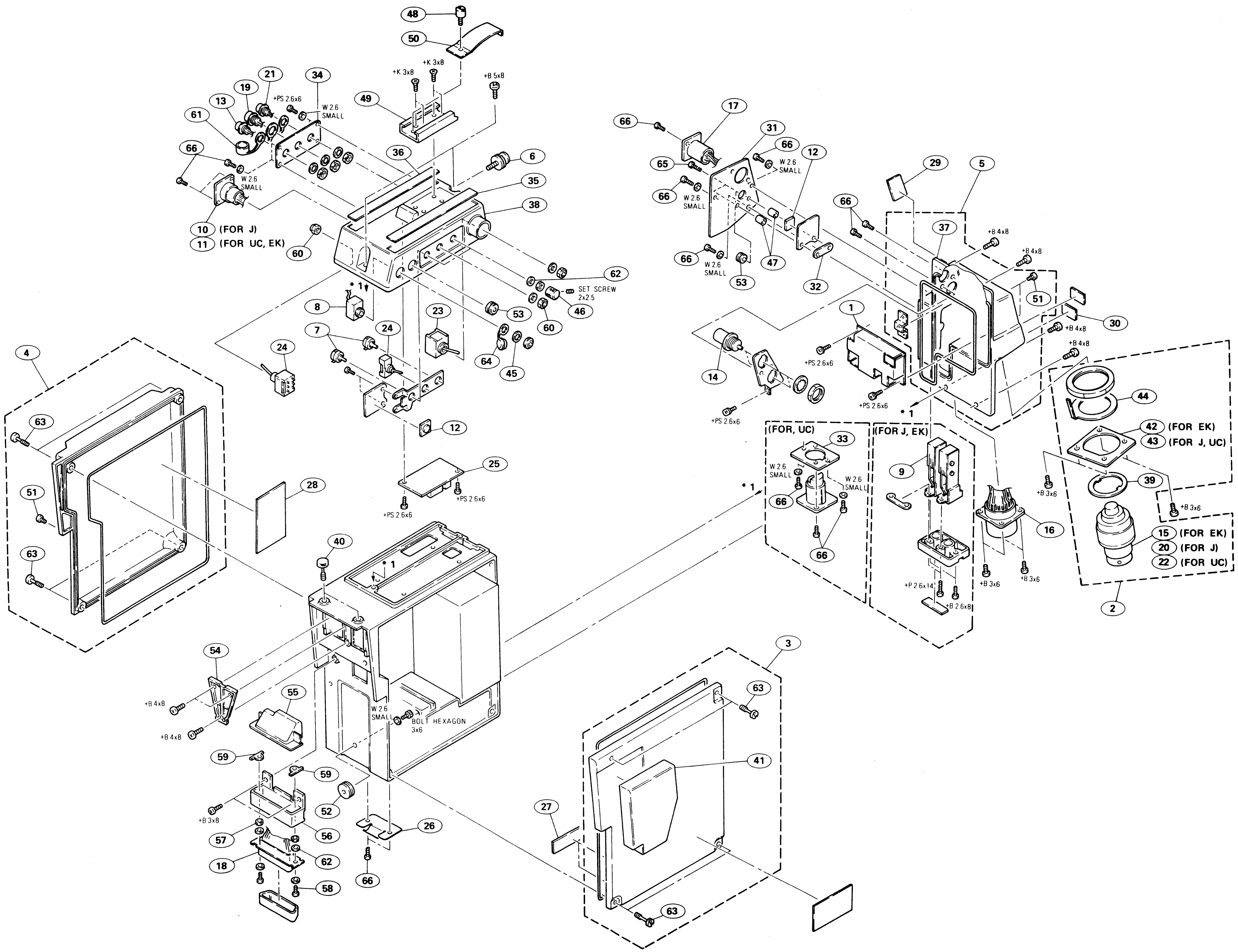
   - Regarding engineering parts and diagrams changes in our engineering department, refer to Sony service bulletins and service manual supplements.

3. **The parts marked with "S" in the SP column** of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

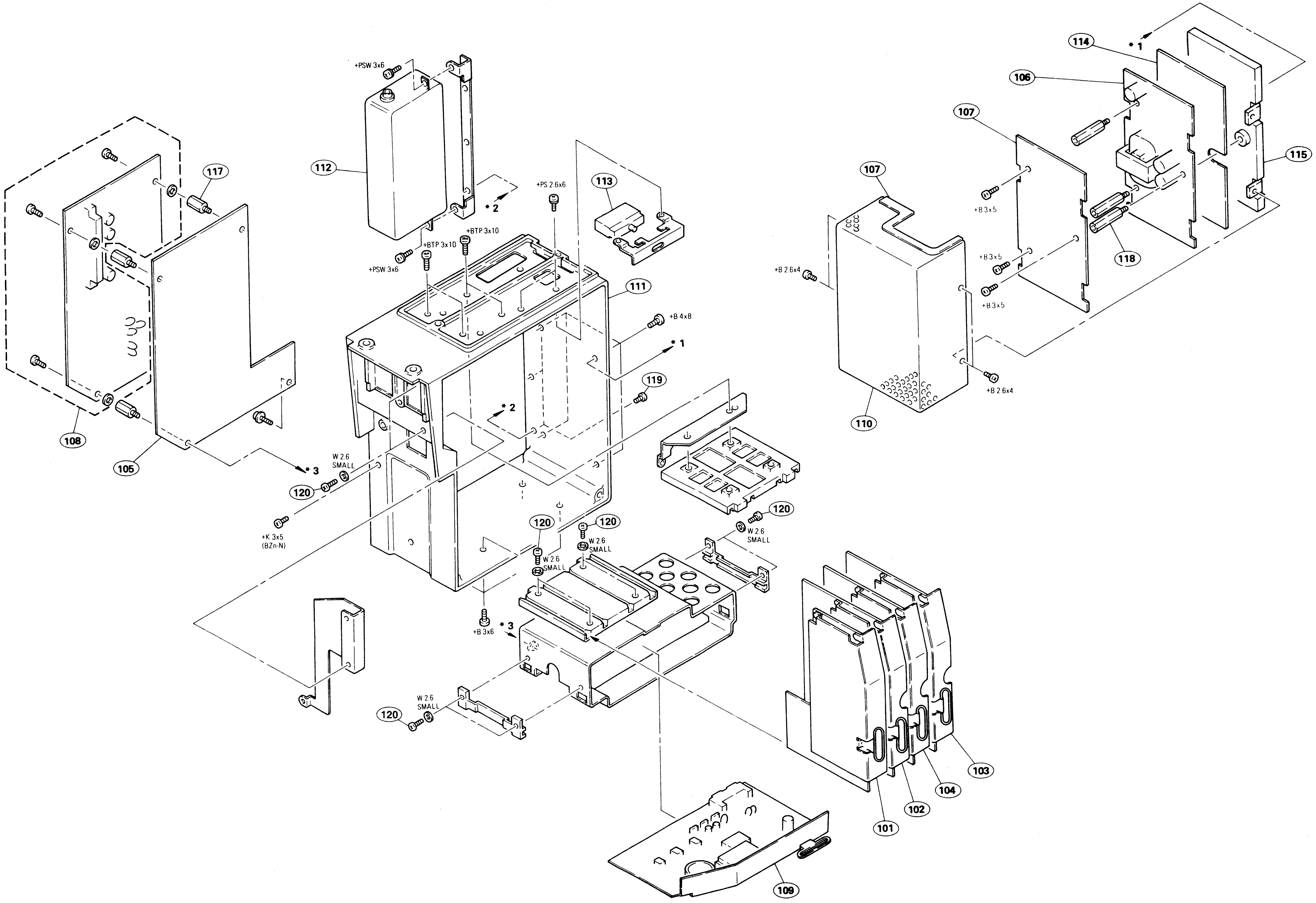
4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. All capacitors are in micro farads unless otherwise specified.
   All inductors are in micro henries unless otherwise specified.
   All resistors are in ohms.

CHASSIS ASSY


48
50
+K 3x8
+K 3x8
+B 5x8
49
21
34
19
13
+PS 2.6x6
W 2.6 SMALL
61
66
W 2.6 SMALL
36
6
35
38
10 (FOR J)
11 (FOR UC, EK)
60
62
SET SCREW 2x2.5
46
8
*1
53
60
23
7
24
24
64
45
12
25
+PS 2.6x6
+PS 2.6x6
28
4
63
51
63
40
*1
54
+B 4x8
+B 4x8
55
W 2.6 SMALL
BOLT HEXAGON 3x6
59
59
52
+B 3x8
57
56
26
62
18
58
66
17
66
31
66
12
65
W 2.6 SMALL
66
W 2.6 SMALL
29
5
66
37
+B 4x8
+B 4x8
66
W 2.6 SMALL
47
53
32
51
30
+B 4x8
+B 4x8
1
14
+PS 2.6x6
+PS 2.6x6
+PS 2.6x6
*1
44
42 (FOR EK)
43 (FOR J, UC)
(FOR, UC)
33
(FOR J, EK)
W 2.6 SMALL
W 2.6 SMALL
*1
66
9
39
+B 3x6
+B 3x6
16
15 (FOR EK)
20 (FOR J)
22 (FOR UC)
66
+P 2.6x14
+B 2.6x8
+B 3x6
+B 3x6
2
3
63
41
27
63

CARD RACK, POWER ASSY



+PSW 3x6
112
+PS 2.6x6
113
* 2
+BTP 3x10
+BTP 3x10
+PSW 3x6
111
+B 4x8
* 1
119
* 2
117
108
105
* 3
W 2.6
SMALL
120
+K 3x5
(BZn-N)
120
120
W 2.6
SMALL
W 2.6
SMALL
120
W 2.6
SMALL
+B 3x6
* 3
W 2.6
SMALL
120
114
* 1
106
107
115
107
+B 3x5
118
+B 3x5
+B 2.6x4
+B 3x5
+B 2.6x4
110
103
104
102
101
109

CARD RACK AND POWER ASSY

No.	Part No.	SP	Description
101	A-7513-874-A	o	MOUNTED CIRCUIT BOARD, RX-6
102	A-7513-875-A	o	MOUNTED CIRCUIT BOARD, TR-47
103	A-7513-876-A	o	MOUNTED CIRCUIT BOARD, MD-54
104	A-7513-877-A	o	MOUNTED CIRCUIT BOARD, MD-55
105	A-7513-895-A	o	MOUNTED CIRCUIT BOARD, HN-106
106	A-7513-896-A	o	MOUNTED CIRCUIT BOARD, DC-42
107	A-7513-897-A	o	MOUNTED CIRCUIT BOARD, DC-43
108	A-7513-898-A	o	MOUNTED CIRCUIT BOARD, VA-80
109	A-8271-834-A	o	MOUNTED CIRCUIT BOARD, IF-423
110	X-2380-737-1	o	COVER ASSY, SHIELD
111	X-2380-738-1	o	CHASSIS SUB ASSY
112	1-236-279-31	s	FILTER, MPX
113	⚠1-532-681-00	s	CIRCUIT BREAKER
114	2-128-248-01	o	SHEET, RADIATION
115	2-128-262-01	o	HEAT SINK
116	2-128-264-01	o	COVER, SHIELD
117	2-128-286-01	o	SUPPORT, VA
118	3-657-983-02	o	SUPPORT (2), D PANEL
119	7-627-556-57	s	SCREW, PRECISION +P2.6X5
120	7-627-556-78	s	SCREW, PRECISION +P2.6X6 TYPE1

CAPACITOR, TANTALUM

Part No.	SP	Description			
1-131-396-00	s	CAP, TANTALUM	0.01	20%	35V
1-131-397-00	s	CAP, TANTALUM	0.015	20%	35V
1-131-398-00	s	CAP, TANTALUM	0.022	20%	35V
1-131-399-00	s	CAP, TANTALUM	0.033	20%	35V
1-131-400-00	s	CAP, TANTALUM	0.047	20%	35V
1-131-401-00	s	CAP, TANTALUM	0.068	10%	35V
1-131-341-00	s	CAP, TANTALUM	0.1	10%	35V
1-131-342-00	s	CAP, TANTALUM	0.15	10%	35V
1-131-343-00	s	CAP, TANTALUM	0.22	10%	35V
1-131-344-00	s	CAP, TANTALUM	0.33	10%	35V
1-131-412-00	s	CAP, TANTALUM	0.47	20%	20V
1-131-345-00	s	CAP, TANTALUM	0.47	10%	35V
1-131-410-00	s	CAP, TANTALUM	0.68	20%	25V
1-131-587-11	s	CAP, TANTALUM	0.68	10%	35V
1-131-347-00	s	CAP, TANTALUM	1.0	20%	20V
1-131-347-00	s	CAP, TANTALUM	1.0	10%	35V
1-131-416-00	s	CAP, TANTALUM	1.5	20%	16V
1-131-348-00	s	CAP, TANTALUM	1.5	10%	35V
1-131-419-00	s	CAP, TANTALUM	2.2	20%	10V
1-131-361-00	s	CAP, TANTALUM	2.2	10%	20V
1-131-349-00	s	CAP, TANTALUM	2.2	10%	35V
1-131-422-00	s	CAP, TANTALUM	3.3	20%	6.3V
1-131-368-00	s	CAP, TANTALUM	3.3	10%	16V
1-131-356-00	s	CAP, TANTALUM	3.3	10%	25V
1-131-350-00	s	CAP, TANTALUM	3.3	10%	35V
1-131-425-00	s	CAP, TANTALUM	4.7	20%	3.15V
1-131-375-00	s	CAP, TANTALUM	4.7	10%	10V
1-131-363-00	s	CAP, TANTALUM	4.7	10%	20V
1-131-351-00	s	CAP, TANTALUM	4.7	10%	35V
1-131-382-00	s	CAP, TANTALUM	6.8	10%	6.3V
1-131-370-00	s	CAP, TANTALUM	6.8	10%	16V
1-131-358-00	s	CAP, TANTALUM	6.8	10%	25V
1-131-352-00	s	CAP, TANTALUM	6.8	10%	35V
1-131-389-00	s	CAP, TANTALUM	10	10%	3.15V
1-131-377-00	s	CAP, TANTALUM	10	10%	10V
1-131-365-00	s	CAP, TANTALUM	10	10%	20V
1-131-353-00	s	CAP, TANTALUM	10	10%	35V
1-131-384-00	s	CAP, TANTALUM	15	10%	6.3V
1-131-372-00	s	CAP, TANTALUM	15	10%	16V
1-131-360-00	s	CAP, TANTALUM	15	10%	25V
1-131-391-00	s	CAP, TANTALUM	22	10%	3.15V
1-131-379-00	s	CAP, TANTALUM	22	10%	10V
1-131-367-00	s	CAP, TANTALUM	22	10%	20V
1-131-386-00	s	CAP, TANTALUM	33	10%	6.3V
1-131-374-00	s	CAP, TANTALUM	33	10%	16V
1-131-393-00	s	CAP, TANTALUM	47	10%	3.15V
1-131-381-00	s	CAP, TANTALUM	47	10%	10V
1-131-388-00	s	CAP, TANTALUM	68	10%	6.3V
1-131-395-00	s	CAP, TANTALUM	100	10%	3.15V

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description			
1-163-083-00	s	CAP, CHIP CERAMIC	1pF	+-0.25pF	50V
1-163-085-00	s	CAP, CHIP CERAMIC	2pF	+-0.25pF	50V
1-163-087-00	s	CAP, CHIP CERAMIC	4pF	+-0.25pF	50V
1-163-089-00	s	CAP, CHIP CERAMIC	6pF	+-0.5pF	50V
1-163-091-00	s	CAP, CHIP CERAMIC	8pF	+-0.5pF	50V
1-163-093-00	s	CAP, CHIP CERAMIC	10pF	5%	50V
1-163-097-00	s	CAP, CHIP CERAMIC	15pF	5%	50V
1-163-101-00	s	CAP, CHIP CERAMIC	22pF	5%	50V
1-163-105-00	s	CAP, CHIP CERAMIC	33pF	5%	50V
1-163-109-00	s	CAP, CHIP CERAMIC	47pF	5%	50V
1-163-113-00	s	CAP, CHIP CERAMIC	68pF	5%	50V
1-163-117-00	s	CAP, CHIP CERAMIC	100pF	5%	50V
1-163-121-00	s	CAP, CHIP CERAMIC	150pF	5%	50V
1-163-125-00	s	CAP, CHIP CERAMIC	220pF	5%	50V
1-163-129-00	s	CAP, CHIP CERAMIC	330pF	5%	50V
1-163-133-00	s	CAP, CHIP CERAMIC	470pF	5%	50V
1-163-137-00	s	CAP, CHIP CERAMIC	680pF	5%	50V
1-163-141-00	s	CAP, CHIP CERAMIC	1000pF	5%	50V
1-163-145-00	s	CAP, CHIP CERAMIC	1500pF	10%	50V
1-164-161-11	s	CAP, CHIP CERAMIC	2200pF	10%	100V
1-164-182-11	s	CAP, CHIP CERAMIC	3300pF	10%	100V
1-163-017-00	s	CAP, CHIP CERAMIC	4700pF	10%	50V
1-163-019-00	s	CAP, CHIP CERAMIC	6800pF	10%	50V
1-164-232-11	s	CAP, CHIP CERAMIC	0.01	20%	100V
1-163-023-00	s	CAP, CHIP CERAMIC	0.015	10%	50V
1-163-034-00	s	CAP, CHIP CERAMIC	0.033		50V
1-163-035-00	s	CAP, CHIP CERAMIC	0.047		50V
1-163-036-00	s	CAP, CHIP CERAMIC	0.068		50V
1-163-038-00	s	CAP, CHIP CERAMIC	0.1		50V

RESISTOR, CHIP

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-11	s	RES, CHIP 3.3 5% 1/10W
1-216-306-11	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-11	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-748-11	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W

RESISTOR, CHIP

Part No.	SP	Description
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-11	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-11	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-11	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

DC-42 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-896-A	o	MOUNTED CIRCUIT BOARD, DC-42
C4	1-126-096-11	s	ELECT 10uF 20% 35V
C5	1-127-512-00	s	ELECT (SOLID) 10uF 20% 16V
C6	1-136-187-11	s	FILM 0.047uF 10% 250V
C7	1-126-527-11	s	ELECT 47uF 20% 200
C8	1-126-527-11	s	ELECT 47uF 20% 200
C10	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C11	1-130-789-00	s	FILM 1uF 5% 100
C12	1-130-789-00	s	FILM 1uF 5% 100
C13	1-161-896-11	s	CERAMIC 0.22uF 50V
C14	1-126-376-11	s	ELECT 470uF 20% 25V
C15	1-126-376-11	s	ELECT 470uF 20% 25V
C17	1-126-376-11	s	ELECT 470uF 20% 25V
C18	1-124-580-11	s	ELECT 330uF 20% 25V
C19	1-126-376-11	s	ELECT 470uF 20% 25V
C20	1-127-513-00	s	ELECT (SOLID) 15uF 20% 25V
C21	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
CN501	1-564-977-11	o	CONNECTOR, MALE 2P
CN502	1-506-617-11	o	CONNECTOR, PS 4P, MALE
CN503	1-506-481-11	o	CONNECTOR, 2P, MALE
CN504	1-506-618-11	o	CONNECTOR, PS 6P, MALE
D1	8-719-160-83	s	DIODE RD30FB1
D2	8-719-109-89	s	DIODE RD5.6ES-B2
D3	8-719-110-44	s	DIODE RD16ESB1
D4	8-719-911-55	s	DIODE U05G
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-920-40	s	DIODE ESAC82-004
D7	8-719-920-40	s	DIODE ESAC82-004
D8	8-719-911-55	s	DIODE U05G
D9	8-719-911-55	s	DIODE U05G
D10	8-719-911-55	s	DIODE U05G
IC1	8-759-701-59	s	IC NJM78M09FA
L1	1-408-549-00	s	INDUCTOR 150MH
L3	1-408-142-21	s	22.5MH
Q1	8-729-105-37	s	TRANSISTOR 2SC3360
Q2	8-729-105-37	s	TRANSISTOR 2SC3360
Q3	8-729-105-08	s	TRANSISTOR 2SA1330-06
Q4	8-729-203-81	s	TRANSISTOR 2SC2238B-Y
Q5	8-729-105-37	s	TRANSISTOR 2SC3360
Q6	8-729-105-37	s	TRANSISTOR 2SC3360
Q7	8-729-114-53	s	TRANSISTOR 2SD1033-K
Q8	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q9	8-729-216-22	s	TRANSISTOR 2SA1162
Q10	8-729-924-41	s	TRANSISTOR 2SC2440
Q11	8-729-924-41	s	TRANSISTOR 2SC2440
R5	1-249-436-11	s	CARBON 39K 5% 1/4W
R10	1-249-413-11	s	CARBON 470 5% 1/4W
R11	1-249-484-11	s	CARBON 6.8 5% 1/2W
R14	1-249-438-11	s	CARBON 56K 5% 1/4W
R19	1-249-485-11	s	CARBON 8.2 5% 1/2W
T1	1-424-135-11	s	FILTER, LINE
T2	1-437-112-21	s	TRANSFORMER, DRIVE
T3	1-437-111-00	s	TRANSFORMER, DRIVE
T4	1-449-419-11	s	TRANSFORMER, CONVERTER

DC-43 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-897-A	o	MOUNTED CIRCUIT BOARD, DC-43
C2	1-126-375-11	s	ELECT 100uF 20% 25V
C3	1-127-513-00	s	ELECT (SOLID) 15uF 20% 25V
C5	1-126-541-11	s	ELECT 330uF 20% 25V
C6	1-127-517-11	s	ELECT (SOLID) 150uF 20% 16V
C8	1-127-520-11	s	ELECT (SOLID) 68uF 20% 20V
C10	1-126-541-11	s	ELECT 330uF 20% 25V
C11	1-127-516-11	s	ALUMN SOLID 220uF 20% 10V
C13	1-163-011-11	s	CERAMIC, CHIP 0.0015uF 10% 50V
C14	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C16	1-126-163-11	s	ELECT 4.7uF 20% 50V
C17	1-126-096-11	s	ELECT 10uF 20% 35V
C19	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C22	1-124-598-11	s	ELECT 22uF 20% 25V
C23	1-126-375-11	s	ELECT 100uF 20% 25V
CN601	1-506-483-21	o	CONNECTOR, 4P, MALE
CN602	1-506-619-11	o	CONNECTOR, 8P, FEMALE
D1	8-719-911-55	s	DIODE U05G
D2	8-719-982-04	s	DIODE ERB81-004
D3	8-719-982-04	s	DIODE ERB81-004
IC1	8-759-937-36	s	IC TL1451ACNS
L1	1-410-283-11	s	48uH (WITH CORE)
L2	1-459-886-11	s	COIL, TROIDAL
L3	1-421-957-11	s	COIL, CHOKE 30uH
L4	1-459-887-11	s	COIL, TROIDAL 30uH
L5	1-410-284-11	s	10uH (WITH CORE)
L6	1-408-409-00	s	INDUCTOR 10uH
Q1	8-729-105-29	s	TRANSISTOR 2SA1385
Q2	8-729-105-29	s	TRANSISTOR 2SA1385
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R2	1-249-414-11	s	CARBON 560 5% 1/4W
R3	1-216-694-11	s	METAL, CHIP 62K 0.5% 1/10W
R4	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R5	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R6	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R7	1-249-414-11	s	CARBON 560 5% 1/4W
R8	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R9	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R10	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R13	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R14	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R15	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R16	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R17	1-216-697-11	s	METAL, CHIP 82K 0.5% 1/10W
R20	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R22	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R24	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R25	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R26	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
RV1	1-228-472-00	s	RES, ADJ, METAL 2K

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

EX-190 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-880-A	o	MOUNTED CIRCUIT BOARD, EX-190
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE
CN2	1-560-934-00	o	CONNECTOR, 40P, MALE

FL-70 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-628-368-11	o	PRINTED CIRCUIT BOARD, FL-70
C1	1-106-367-00	s	MYLAR 0.01uF 10% 100V
C2	1-106-367-00	s	MYLAR 0.01uF 10% 100V
C3	1-106-367-00	s	MYLAR 0.01uF 10% 100V
C4	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C5	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C6	1-106-367-00	s	MYLAR 0.01uF 10% 100V
CN1	1-508-775-00	o	CONNECTOR, 2P, MALE
CN2	1-564-104-00	o	CONNECTOR, 3P, MALE
CN3	1-562-873-11	o	CONNECTOR, 2.5C COAXIAL
L1	1-459-442-00	s	COIL (WITH CORE)
L2	1-459-442-00	s	COIL (WITH CORE)
L3	1-459-442-00	s	COIL (WITH CORE)
L4	1-459-442-00	s	COIL (WITH CORE)
L5	1-459-442-00	s	COIL (WITH CORE)
L6	1-408-429-00	s	INDUCTOR 470uH

HN-106 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-895-A	o	MOUNTED CIRCUIT BOARD, HN-106
10pcs	1-560-707-00	o	POLARISING KEY
C1	1-124-120-11	s	ELECT 220uF 20% 25V
C2	1-124-120-11	s	ELECT 220uF 20% 25V
CN101	1-562-066-00	o	CONNECTOR, 40P, FEMALE
CN102	1-562-066-00	o	CONNECTOR, 40P, FEMALE
CN103	1-562-066-00	o	CONNECTOR, 40P, FEMALE
CN104	1-562-066-00	o	CONNECTOR, 40P, FEMALE
CN105	1-562-066-00	o	CONNECTOR, 40P, FEMALE
CN106	1-563-239-21	o	CONNECTOR, 40P, MALE
CN107	1-506-486-11	o	CONNECTOR, 7P, MALE
CN108	1-506-493-11	o	CONNECTOR, 14P, MALE
CN109	1-506-632-11	o	CONNECTOR, PS 6P, MALE
CN110	1-506-483-21	o	CONNECTOR, 4P, MALE
CN111	1-506-485-11	o	CONNECTOR, 6P, MALE
CN112	1-506-481-21	o	CONNECTOR, 2P, MALE
CN113	1-506-483-21	o	CONNECTOR, 4P, MALE
CN114	1-506-485-11	o	CONNECTOR, 6P, MALE
CN115	1-506-470-11	o	CONNECTOR, 5P, MALE
CN116	1-506-470-21	o	CONNECTOR, 5P, MALE
CN117	1-506-631-11	o	CONNECTOR, PS 4P, MALE
CN118	1-506-467-11	o	CONNECTOR, 2P, MALE
CN119	1-506-634-11	o	CONNECTOR, PS 10P, MALE
CN120	1-506-633-11	o	CONNECTOR, 8P, MALE
CN121	1-506-467-11	o	CONNECTOR, 2P, MALE
CN122	1-506-487-11	o	CONNECTOR, 8P, MALE
CN123	1-506-484-11	o	CONNECTOR, 5P, MALE
CN124	1-506-484-31	o	CONNECTOR, 5P, MALE
CN125	1-506-485-11	o	CONNECTOR, 6P, MALE
CN126	1-561-310-00	s	CONNECTOR, COAXIAL, MALE
CN127	1-561-310-00	s	CONNECTOR, COAXIAL, MALE
CN128	1-561-310-00	s	CONNECTOR, COAXIAL, MALE
CN129	1-561-310-00	s	CONNECTOR, COAXIAL, MALE
CN130	1-506-484-11	o	CONNECTOR, 5P, MALE
CN131	1-506-483-21	o	CONNECTOR, 4P, MALE
S1	1-570-839-11	s	SWITCH, SLIDE

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

IF-423 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-834-A	o	MOUNTED CIRCUIT BOARD, IF-423
2pcs	1-560-707-00	o	POLARISING KEY
3pcs	1-561-724-00	o	PLUG, SHORTING
1pc	3-711-775-01	o	LEVER, PULL
3pcs	7-621-773-86	s	SCREW +B 2.6X4
C5	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C6	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C9	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C10	1-163-139-00	s	CERAMIC, CHIP 820PF 5% 50V
C18	1-162-732-11	s	CERAMIC 820PF 1% 50V
C20	1-162-767-11	s	CERAMIC 0.0015uF 5% 50V
C21	1-162-724-11	s	CERAMIC 390PF 1% 50V
C22	1-162-732-11	s	CERAMIC 820PF 1% 50V
C23	1-162-732-11	s	CERAMIC 820PF 1% 50V
C24	1-162-732-11	s	CERAMIC 820PF 1% 50V
C26	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C27	1-162-724-11	s	CERAMIC 390PF 1% 50V
C31	1-126-933-11	s	ELECT 100uF 20% 16V
C32	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C33	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C35	1-125-446-11	s	CAP, DOUBLE LAYERS 0.47FARAD 5.50V
C38	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE
CNI17	1-526-659-00	o	SOCKET, IC (DP) 28P
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-104-34	s	DIODE 1S2836
D4	8-719-104-34	s	DIODE 1S2836
D5	8-719-104-34	s	DIODE 1S2836
D6	8-719-400-18	s	DIODE MA152WK
D8	8-719-948-47	s	DIODE HSM88AS
D9	8-719-948-47	s	DIODE HSM88AS
IC1	8-759-918-65	s	IC TL7700CPS
IC3	8-759-906-53	s	IC TL062CPS
IC4	8-759-200-90	s	IC TC4538BF
IC9	8-759-200-90	s	IC TC4538BF
IC10	8-759-927-46	s	IC SN74HC00NS
IC11	8-759-008-98	s	IC MC14040BF
IC12	8-759-200-90	s	IC TC4538BF
IC13	8-759-507-85	s	IC MS62256CLL-10FC
IC14	8-759-927-46	s	IC SN74HC00NS
IC15	8-759-906-53	s	IC TL062CPS
IC16	8-759-982-21	s	IC RC78L05A
IC18	8-759-927-46	s	IC SN74HC00NS
IC19	8-759-300-71	s	IC MC14053BF
IC20	8-759-927-46	s	IC SN74HC00NS
IC21	8-759-013-92	s	IC MC74HC164F
IC22	8-759-234-13	s	IC TC4S30F
IC23	8-759-035-93	s	IC SC7S32F
IC24	8-759-234-20	s	IC TC7S08F
L1	1-408-417-00	s	INDUCTOR 47uH
Q1	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q2	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q3	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q4	8-729-216-22	s	TRANSISTOR 2SA1162
Q5	8-729-109-44	s	TRANSISTOR 2SK94

(IF-423 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q6	8-729-216-22	s	TRANSISTOR 2SA1162
Q7	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q8	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q9	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q12	8-729-216-22	s	TRANSISTOR 2SA1162
Q13	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q14	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q15	8-729-216-22	s	TRANSISTOR 2SA1162
Q16	8-729-216-22	s	TRANSISTOR 2SA1162
R5	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R6	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R38	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R40	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R41	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R42	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R50	1-216-690-11	s	METAL, CHIP 43K 0.5% 1/10W
R51	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R76	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R77	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R91	1-216-076-00	s	METAL, CHIP 13K 5% 1/10W
RV1	1-228-460-00	s	RES, ADJ, METAL 20K
RV2	1-228-460-00	s	RES, ADJ, METAL 20K
RV3	1-228-460-00	s	RES, ADJ, METAL 20K
RV4	1-228-459-00	s	RES, ADJ, METAL 10K
S1	1-570-621-11	s	SWITCH, DIP
S2	1-570-857-11	s	SWITCH, SLIDE
S3	1-570-606-11	s	SWITCH, TOGGLE
X1	1-579-714-11	s	OSCILLATOR, CRYSTAL 20.0MHz

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

MD-54 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-876-A	o	MOUNTED CIRCUIT BOARD, MD-54
2pcs	1-560-707-00	o	POLARISING KEY
1pc	3-711-775-01	o	LEVER, PULL
3pcs	7-621-773-86	s	SCREW +B 2.6X4
C10	1-107-046-00	s	MICA 4.7PF 500V
C20	1-162-802-11	s	CERAMIC 0.047uF 10% 50V
C35	1-162-714-11	s	CERAMIC 150PF 1% 50V
C36	1-162-714-11	s	CERAMIC 150PF 1% 50V
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE
CV1	1-141-298-11	s	CAP, CERAMIC TRIMMER 10P
D1	8-719-104-34	s	DIODE 1S2836
FL1	1-236-274-11	s	LOW PASS 9MHz
IC1	8-759-009-14	s	IC MC14073BF
IC2	8-759-100-93	s	IC UPC393G2
IC3	8-759-009-03	s	IC MC14049UBF
IC4	8-759-906-53	s	IC TL062CPS
IC5	8-759-300-71	s	IC MC14053BF
IC6	8-759-981-51	s	IC RC1496M
L1	1-408-413-00	s	INDUCTOR 22uH
L2	1-408-413-00	s	INDUCTOR 22uH
L3	1-408-409-00	s	INDUCTOR 10uH
L4	1-408-409-00	s	INDUCTOR 10uH
LV1	1-410-301-11	s	MICRO 1.0uH
Q2	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q3	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q4	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q5	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q6	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q7	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q8	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q9	8-729-122-63	s	TRANSISTOR 2SA1226
Q10	8-729-122-63	s	TRANSISTOR 2SA1226
Q11	8-769-401-67	s	TRANSISTOR 3SK163-1
Q12	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q13	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q16	8-729-122-63	s	TRANSISTOR 2SA1226
Q17	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q18	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q19	8-729-403-29	s	TRANSISTOR XN6435
Q20	8-729-403-29	s	TRANSISTOR XN6435
Q21	8-729-403-29	s	TRANSISTOR XN6435
R4	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R6	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R8	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R9	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R10	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R29	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R30	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R31	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R32	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R33	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R34	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R35	1-216-656-11	s	METAL, CHIP 1.6K 0.5% 1/10W
R37	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R38	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R39	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R43	1-216-670-11	s	METAL, CHIP 6.2K 0.5% 1/10W
R44	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R47	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R48	1-216-698-11	s	METAL, CHIP 91K 0.5% 1/10W
R49	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R50	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R52	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R53	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R54	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R56	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R57	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R63	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R65	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R67	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R68	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R71	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R72	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R75	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R77	1-216-688-11	s	METAL, CHIP 36K 0.5% 1/10W
R78	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R79	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R80	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R93	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R94	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R95	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R96	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R97	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R98	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
RP1	1-239-024-11	s	MATRIX RESISTOR
RV1	1-228-458-00	s	RES, ADJ, METAL 5K
RV2	1-228-458-00	s	RES, ADJ, METAL 5K
RV3	1-228-458-00	s	RES, ADJ, METAL 5K
RV4	1-228-460-00	s	RES, ADJ, METAL 20K
RV5	1-228-458-00	s	RES, ADJ, METAL 5K
RV7	1-228-460-00	s	RES, ADJ, METAL 20K
RV8	1-228-455-00	s	RES, ADJ, METAL 500
RV9	1-228-459-00	s	RES, ADJ, METAL 10K
S1	1-570-610-11	s	SWITCH, TOGGLE
S2	1-570-610-11	s	SWITCH, TOGGLE
S3	1-570-610-11	s	SWITCH, TOGGLE

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

MD-55 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-877-A	o	MOUNTED CIRCUIT BOARD, MD-55
1pc	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
2pcs	1-560-707-00	o	POLARISING KEY
1pc	3-711-775-01	o	LEVER, PULL
3pcs	7-621-773-86	s	SCREW +B 2.6X4
C7	1-107-205-00	s	MICA 13PF 5% 500V
C14	1-162-806-11	s	CERAMIC 0.1uF 10% 50V
C21	1-107-205-00	s	MICA 13PF 5% 500V
C30	1-161-473-00	s	CERAMIC 0.01uF 10% 50V
C33	1-162-674-11	s	CERAMIC 39PF 5% 50V
C50	1-107-049-00	s	MICA 8.2PF 500V
C65	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C67	1-163-102-00	s	CERAMIC, CHIP 24PF 5% 50V
C68	1-163-102-00	s	CERAMIC, CHIP 24PF 5% 50V
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE
CP1	1-577-202-11	s	OSCILLATOR, CRYSTAL 36MHz
FL1	1-236-274-11	s	LOW PASS 9MHz
FL2	1-236-274-11	s	LOW PASS 9MHz
FL3	1-415-436-11	s	PHASE SHIFT 36uH
FL4	1-235-570-11	s	BAND PASS 18MHz
FL5	1-236-278-11	s	LOW PASS 36MHz
IC1	8-759-906-53	s	IC TL062CPS
IC2	8-759-981-51	s	IC RC1496M
IC3	8-759-981-51	s	IC RC1496M
IC4	8-759-708-05	s	IC NJM78L05A
IC5	8-759-906-71	s	IC 74F175PC
L1	1-408-413-00	s	INDUCTOR 22uH
L2	1-408-413-00	s	INDUCTOR 22uH
L3	1-408-413-00	s	INDUCTOR 22uH
L4	1-408-413-00	s	INDUCTOR 22uH
L5	1-410-509-11	s	INDUCTOR 10uH
L6	1-408-409-00	s	INDUCTOR 10uH
L7	1-408-409-00	s	INDUCTOR 10uH
L8	1-408-409-00	s	INDUCTOR 10uH
L9	1-408-409-00	s	INDUCTOR 10uH
L10	1-408-409-00	s	INDUCTOR 10uH
L11	1-412-150-11	s	MICRO INDUCTOR 0.12uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q5	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q6	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-769-401-67	s	TRANSISTOR 3SK163-1
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q11	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q12	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q13	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q14	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-216-22	s	TRANSISTOR 2SA1162
Q17	8-769-401-67	s	TRANSISTOR 3SK163-1
Q18	8-729-175-71	s	TRANSISTOR 2SC2757
Q19	8-729-175-71	s	TRANSISTOR 2SC2757
Q20	8-729-112-65	s	TRANSISTOR 2SA1462

(MD-55 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q21	8-729-175-71	s	TRANSISTOR 2SC2757
Q22	8-729-112-65	s	TRANSISTOR 2SA1462
Q23	8-729-175-71	s	TRANSISTOR 2SC2757
Q24	8-729-175-71	s	TRANSISTOR 2SC2757
Q25	8-729-175-71	s	TRANSISTOR 2SC2757
Q26	8-729-175-71	s	TRANSISTOR 2SC2757
Q27	8-729-175-71	s	TRANSISTOR 2SC2757
R11	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R12	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R14	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R15	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R18	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R19	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R21	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R27	1-216-698-11	s	METAL, CHIP 91K 0.5% 1/10W
R35	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R36	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R38	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R41	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R42	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R43	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R45	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R51	1-216-698-11	s	METAL, CHIP 91K 0.5% 1/10W
R54	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R55	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R57	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R62	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R63	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R64	1-216-046-00	s	METAL, CHIP 750 5% 1/10W
R66	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R67	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R68	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R69	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R72	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R73	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R74	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R75	1-216-688-11	s	METAL, CHIP 36K 0.5% 1/10W
R76	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R77	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R78	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R79	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R80	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R81	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R82	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R85	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R86	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R87	1-216-688-11	s	METAL, CHIP 36K 0.5% 1/10W
R88	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R89	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R90	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R91	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R96	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R97	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R102	1-216-688-11	s	METAL, CHIP 36K 0.5% 1/10W
R104	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R105	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R106	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R107	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(MD-55 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RP1	1-239-025-11	s	MATRIX RESISTOR
RP2	1-239-026-11	s	MATRIX RESISTOR
RV1	1-228-458-00	s	RES, ADJ, METAL 5K
RV2	1-228-457-00	s	RES, ADJ, METAL 2K
RV4	1-228-458-00	s	RES, ADJ, METAL 5K
RV7	1-228-456-00	s	RES, ADJ, METAL 1K
RV8	1-228-459-00	s	RES, ADJ, METAL 10K
RV9	1-228-456-00	s	RES, ADJ, METAL 1K
RV10	1-228-459-00	s	RES, ADJ, METAL 10K
RV11	1-228-457-00	s	RES, ADJ, METAL 2K
RV12	1-228-454-00	s	RES, ADJ, METAL 200

RX-6 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-874-A	o	MOUNTED CIRCUIT BOARD, RX-6
2pcs	1-560-707-00	o	POLARISING KEY
1pc	3-711-775-01	o	LEVER, PULL
2pcs	7-621-773-86	s	SCREW +B 2.6X4
C3	1-163-217-11	s	CERAMIC, CHIP 1PF 0.25PF 50V
C6	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C9	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C12	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C13	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C14	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C15	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C16	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C17	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C20	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C21	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C22	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C25	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C26	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C46	1-106-367-00	s	MYLAR 0.01uF 10% 100V
C51	1-124-584-00	s	ELECT 100uF 20% 10V
C63	1-163-220-11	s	CERAMIC, CHIP 3PF 0.25PF 50V
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE
CP1	1-464-758-11	s	CONVERTER, DC-DC (CD-54)
D1	8-713-300-57	s	DIODE 1T33
D2	8-713-300-57	s	DIODE 1T33
D3	8-713-300-57	s	DIODE 1T33
D4	8-713-300-57	s	DIODE 1T33
D5	8-719-109-97	s	DIODE RD6.8ES-B2
D6	8-719-109-97	s	DIODE RD6.8ES-B2
D7	8-719-118-38	s	DIODE 1SZ46A
D8	8-719-101-50	s	DIODE RD5.1E-L2
D9	8-719-101-98	s	DIODE 1SS97-0
FL1	1-236-272-11	s	BAND PASS 70MHz
FL2	1-236-277-11	s	LOW PASS 4MHz
IC1	8-759-927-85	s	IC CA3102E-S
IC2	8-752-032-63	s	IC CXA1165M
IC3	8-759-908-17	s	IC TL082CPS
L1	1-422-595-12	s	COIL, AIR CORE
L2	1-410-322-11	s	MICRO INDUCTOR 3.3uH
L3	1-408-413-00	s	INDUCTOR 22uH
L4	1-408-413-00	s	INDUCTOR 22uH
L5	1-408-413-00	s	INDUCTOR 22uH
L6	1-408-409-00	s	INDUCTOR 10uH
L7	1-408-409-00	s	INDUCTOR 10uH
L8	1-408-413-00	s	INDUCTOR 22uH
L9	1-408-413-00	s	INDUCTOR 22uH
L10	1-408-413-00	s	INDUCTOR 22uH
L11	1-408-413-00	s	INDUCTOR 22uH
LV1	1-410-350-11	s	MICRO 0.6uH
LV2	1-410-296-11	s	MICRO 0.2uH
Q1	8-729-119-27	s	TRANSISTOR 2SC2758-U17
Q2	8-729-119-27	s	TRANSISTOR 2SC2758-U17
Q3	8-729-119-27	s	TRANSISTOR 2SC2758-U17
Q4	8-729-266-83	s	TRANSISTOR 2SC2668
Q5	8-729-105-47	s	TRANSISTOR 2SC2026-L

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(RX-6 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q6	8-729-105-47	s	TRANSISTOR 2SC2026-L
Q7	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q8	8-729-266-83	s	TRANSISTOR 2SC2668
Q9	8-729-140-93	s	TRANSISTOR 2SB739-34
Q10	8-729-140-98	s	TRANSISTOR 2SD773-34
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q12	8-729-122-63	s	TRANSISTOR 2SA1226
Q13	8-729-101-25	s	TRANSISTOR 2SC1009A
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-101-25	s	TRANSISTOR 2SC1009A
Q16	8-729-101-25	s	TRANSISTOR 2SC1009A
Q17	8-729-101-25	s	TRANSISTOR 2SC1009A
Q18	8-729-101-25	s	TRANSISTOR 2SC1009A
Q19	8-729-122-63	s	TRANSISTOR 2SA1226
Q20	8-729-900-53	s	TRANSISTOR DTC114EK
Q21	8-729-900-53	s	TRANSISTOR DTC114EK
R1	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R19	1-216-640-11	s	METAL, CHIP 360 0.5% 1/10W
R27	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R30	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R35	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R41	1-214-098-00	s	METAL 39 1% 1/4W
R44	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R47	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R48	1-216-660-11	s	METAL, CHIP 2.4K 0.5% 1/10W
R50	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R51	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R53	1-216-660-11	s	METAL, CHIP 2.4K 0.5% 1/10W
R58	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R59	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R60	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R61	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R62	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R65	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R67	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R82	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R83	1-216-664-11	s	METAL, CHIP 3.6K 0.5% 1/10W
RV1	1-228-455-00	s	RES, ADJ, METAL 500
RV2	1-228-457-00	s	RES, ADJ, METAL 2K
S1	1-570-610-11	s	SWITCH, TOGGLE
T1	1-417-171-11	s	COIL, BALUNE
T2	1-417-171-11	s	COIL, BALUNE

SW-312 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-628-369-11	o	PRINTED CIRCUIT BOARD, SW-312
C1	1-124-927-11	s	ELECT 4.7uF 20% 100V
C2	1-124-927-11	s	ELECT 4.7uF 20% 100V
C3	1-124-927-11	s	ELECT 4.7uF 20% 100V
CN301	1-506-468-11	o	CONNECTOR, 3P, MALE
CN302	1-506-470-11	o	CONNECTOR, 5P, MALE
CN303	1-506-468-11	o	CONNECTOR, 3P, MALE
CN304	1-506-474-11	o	CONNECTOR, 9P, MALE
R1	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R2	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R3	1-247-903-00	s	CARBON 1M 5% 1/4W
R4	1-247-903-00	s	CARBON 1M 5% 1/4W
R5	1-249-417-11	s	CARBON 1K 5% 1/4W

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

TR-47 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-875-A	o	MOUNTED CIRCUIT BOARD, TR-47
2pcs	1-560-707-00	o	POLARISING KEY
1pc	3-711-775-01	o	LEVER, PULL
3pcs	7-621-773-86	s	SCREW +B 2.6X4
C4	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C5	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C7	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C10	1-101-361-00	s	CERAMIC 150PF 5% 50V
C11	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C12	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C15	1-126-163-11	s	ELECT 4.7uF 20% 50V
C16	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C17	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C22	1-124-292-00	s	ELECT 33uF 20% 6.3V
C29	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C32	1-102-816-00	s	CERAMIC 120PF 5% 50V
C33	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C34	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C35	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C42	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C48	1-163-253-11	s	CERAMIC, CHIP 120PF 5% 50V
C51	1-101-884-00	s	CERAMIC 56PF 5% 50V
C52	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C53	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C54	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C68	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C72	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C73	1-163-139-00	s	CERAMIC, CHIP 820PF 5% 50V
C75	1-102-959-00	s	CERAMIC 22PF 5% 50V
C76	1-101-880-00	s	CERAMIC 47PF 10% 50V
C81	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C87	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C93	1-102-959-00	s	CERAMIC 22PF 5% 50V
C94	1-101-361-00	s	CERAMIC 150PF 5% 50V
C99	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C104	1-163-257-11	s	CERAMIC, CHIP 180PF 5% 50V
C105	1-162-767-11	s	CERAMIC 0.0015uF 5% 50V
C108	1-101-361-00	s	CERAMIC 150PF 5% 50V
C109	1-101-888-00	s	CERAMIC 68PF 5% 50V
C114	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C116	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C118	1-101-361-00	s	CERAMIC 150PF 5% 50V
C119	1-101-884-00	s	CERAMIC 56PF 5% 50V
C124	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C126	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C127	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C129	1-163-120-00	s	CERAMIC, CHIP 130PF 5% 50V
C131	1-163-118-00	s	CERAMIC, CHIP 110PF 5% 50V
C135	1-163-122-00	s	CERAMIC, CHIP 160PF 5% 50V
CF1	1-577-208-11	s	FILTER, CERAMIC 6.2MHz
CF2	1-577-209-11	s	FILTER, CERAMIC 6.8MHz
CF3	1-577-207-11	s	FILTER, CERAMIC
CF4	1-577-365-11	s	FILTER, CERAMIC
CF5	1-577-206-11	s	FILTER, CERAMIC 4.9MHz
CF6	1-577-203-11	s	FILTER, CERAMIC 3.6MHz
CF7	1-577-204-11	s	FILTER, CERAMIC 3.9MHz
CN1	1-560-935-00	o	CONNECTOR, 40P, MALE

(TR-47 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-400-18	s	DIODE MA152WK
D4	8-719-104-34	s	DIODE 1S2836
D5	8-719-800-76	s	DIODE 1SS226
D6	8-719-800-76	s	DIODE 1SS226
D7	8-719-949-35	s	DIODE FC53M-6
D8	8-719-800-76	s	DIODE 1SS226
D9	8-719-800-76	s	DIODE 1SS226
D10	8-719-800-76	s	DIODE 1SS226
D11	8-719-101-67	s	DIODE RD7.5E-L2
D12	8-719-800-76	s	DIODE 1SS226
D13	8-719-800-76	s	DIODE 1SS226
D14	8-719-949-35	s	DIODE FC53M-6
D15	8-719-800-76	s	DIODE 1SS226
D16	8-719-101-98	s	DIODE 1SS97-0
D17	8-719-104-34	s	DIODE 1S2836
D18	8-719-101-58	s	DIODE RD5.6EL2
D19	8-719-800-76	s	DIODE 1SS226
D20	8-719-913-44	s	DIODE ERA82-004
D21	8-719-948-47	s	DIODE HSM88AS
D22	8-719-948-47	s	DIODE HSM88AS
D23	8-719-949-35	s	DIODE FC53M-6
D24	8-719-911-19	s	DIODE 1SS119
FL1	1-236-273-11	s	LOW PASS 4.9MHz
IC1	8-759-209-15	s	IC TC4SU69F
IC2	8-759-745-64	s	IC NJM4560M
IC3	8-759-745-64	s	IC NJM4560M
IC4	8-759-700-45	s	IC NJM4556M-A
IC5	8-759-201-36	s	IC TA7303P
IC6	8-759-700-45	s	IC NJM4556M-A
IC7	8-759-201-36	s	IC TA7303P
IC8	8-759-908-17	s	IC TL082CPS
IC9	8-759-201-36	s	IC TA7303P
IC10	8-759-906-53	s	IC TL062CPS
IC11	8-759-201-36	s	IC TA7303P
L1	1-410-509-11	s	INDUCTOR 10uH
L2	1-410-509-11	s	INDUCTOR 10uH
L3	1-410-509-11	s	INDUCTOR 10uH
L4	1-410-513-11	s	INDUCTOR 22uH
L5	1-410-509-11	s	INDUCTOR 10uH
L6	1-410-513-11	s	INDUCTOR 22uH
L7	1-410-509-11	s	INDUCTOR 10uH
L8	1-410-509-11	s	INDUCTOR 10uH
L9	1-410-509-11	s	INDUCTOR 10uH
L10	1-410-509-11	s	INDUCTOR 10uH
L11	1-410-509-11	s	INDUCTOR 10uH
L12	1-410-509-11	s	INDUCTOR 10uH
L13	1-410-509-11	s	INDUCTOR 10uH
L14	1-410-509-11	s	INDUCTOR 10uH
LV1	1-459-890-11	s	COIL, VARIABLE
LV2	1-459-888-11	s	COIL, VARIABLE
LV3	1-459-889-11	s	COIL, VARIABLE
LV4	1-459-891-11	s	COIL, VARIABLE
LV5	1-459-891-11	s	COIL, VARIABLE
LV6	1-459-891-11	s	COIL, VARIABLE
LV7	1-459-891-11	s	COIL, VARIABLE

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(TR-47 BOARD)

(TR-47 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-119-78	s	TRANSISTOR 2SC2603-E
Q3	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q4	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q5	8-729-119-04	s	TRANSISTOR 2SC3115-D27
Q6	8-729-119-04	s	TRANSISTOR 2SC3115-D27
Q7	8-729-119-04	s	TRANSISTOR 2SC3115-D27
Q8	8-729-119-04	s	TRANSISTOR 2SC3115-D27
Q9	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q12	8-729-101-25	s	TRANSISTOR 2SC1009A
Q13	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q14	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q15	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q16	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q17	8-729-101-25	s	TRANSISTOR 2SC1009A
Q18	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q19	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q20	8-729-122-63	s	TRANSISTOR 2SA1226
Q21	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q22	8-729-122-63	s	TRANSISTOR 2SA1226
Q23	8-729-200-87	s	TRANSISTOR 2SC2714-Y
Q24	8-729-122-63	s	TRANSISTOR 2SA1226
Q25	8-729-216-22	s	TRANSISTOR 2SA1162
Q26	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q27	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q28	8-729-122-63	s	TRANSISTOR 2SA1226
Q29	8-729-122-63	s	TRANSISTOR 2SA1226
Q30	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q31	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q32	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q33	8-729-122-63	s	TRANSISTOR 2SA1226
Q34	8-729-122-63	s	TRANSISTOR 2SA1226
Q35	8-729-216-22	s	TRANSISTOR 2SA1162
Q36	8-729-216-22	s	TRANSISTOR 2SA1162
Q37	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q38	8-729-122-63	s	TRANSISTOR 2SA1226
Q39	8-729-122-63	s	TRANSISTOR 2SA1226
Q40	8-729-122-63	s	TRANSISTOR 2SA1226
Q41	8-729-122-63	s	TRANSISTOR 2SA1226
R6	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R7	1-216-684-11	s	METAL, CHIP 24K 0.5% 1/10W
R9	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R10	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R12	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R16	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R19	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R22	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R23	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R25	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R26	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R29	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R30	1-216-611-11	s	METAL, CHIP 22 0.5% 1/10W
R33	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R34	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R35	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R36	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R37	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R39	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R41	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R42	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R43	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R44	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R48	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R49	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R50	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R51	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R52	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R53	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R61	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R64	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R65	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R70	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R73	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R80	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R81	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R83	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R85	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R86	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R87	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R88	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R89	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R97	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R100	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R110	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R115	1-249-393-11	s	CARBON 10 5% 1/4W
R123	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R124	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R129	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R133	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R134	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R139	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R140	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R149	1-249-393-11	s	CARBON 10 5% 1/4W
R160	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R164	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R165	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R169	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R170	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R171	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R174	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R177	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R178	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R188	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R192	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R193	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R202	1-216-688-11	s	METAL, CHIP 36K 0.5% 1/10W
R207	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R208	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R214	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
RV1	1-228-456-00	s	RES, ADJ, METAL 1K
RV2	1-228-459-00	s	RES, ADJ, METAL 10K
RV3	1-228-456-00	s	RES, ADJ, METAL 1K
RV4	1-228-459-00	s	RES, ADJ, METAL 10K
RV5	1-228-457-00	s	RES, ADJ, METAL 2K

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(TR-47 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV6	1-228-460-00	s	RES, ADJ, METAL 20K
RV7	1-228-460-00	s	RES, ADJ, METAL 20K
RV8	1-228-460-00	s	RES, ADJ, METAL 20K
S1	1-570-612-11	s	SWITCH, TOGGLE
S2	1-570-838-11	s	SWITCH, SLIDE
X1	1-527-990-00	s	CRYSTAL 32.768KHz

VA-80 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7513-898-A	o	MOUNTED CIRCUIT BOARD, VA-80
3pcs	3-669-596-00	s	WASHER (2.3), STOPPER
C3	1-107-040-00	s	MICA 1.5PF 0.5PF 500V
C4	1-107-045-00	s	MICA 3.9PF 500V
C7	1-107-040-00	s	MICA 1.5PF 0.5PF 500V
C8	1-107-045-00	s	MICA 3.9PF 500V
C11	1-107-040-00	s	MICA 1.5PF 0.5PF 500V
C12	1-107-045-00	s	MICA 3.9PF 500V
C19	1-107-047-00	s	MICA 5.6PF 500V
C39	1-107-042-00	s	MICA 2.2PF 500V
C40	1-107-045-00	s	MICA 3.9PF 500V
C41	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C42	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C47	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C48	1-163-135-00	s	CERAMIC, CHIP 560PF 5% 50V
C49	1-162-773-11	s	CERAMIC 0.0047uF 5% 50V
C50	1-162-773-11	s	CERAMIC 0.0047uF 5% 50V
CN201	1-506-730-11	o	CONNECTOR, 40P, MALE
CN202	1-506-731-11	o	CONNECTOR, 40P, MALE
CN203	1-506-490-21	s	CONNECTOR, 11P, MALE
CN204	1-506-485-11	o	CONNECTOR, 6P, MALE
CN205	1-506-484-31	o	CONNECTOR, 5P, MALE
D1	8-719-109-66	s	DIODE RD3.3ES-B2
D2	8-719-101-50	s	DIODE RD5.1E-L2
D3	8-719-400-18	s	DIODE MA152WK
D4	8-719-119-39	s	DIODE 1SZ47A
D5	8-719-400-18	s	DIODE MA152WK
D6	8-719-400-18	s	DIODE MA152WK
D7	8-719-400-18	s	DIODE MA152WK
D8	8-719-400-18	s	DIODE MA152WK
D9	8-719-104-34	s	DIODE 1S2836
D10	8-719-104-34	s	DIODE 1S2836
D11	8-719-110-22	s	DIODE RD11EB1
D12	8-719-101-98	s	DIODE 1SS97-0
IC1	8-759-906-53	s	IC TL062CPS
IC2	8-759-300-71	s	IC MC14053BF
IC3	8-759-100-93	s	IC UPC393G2
IC4	8-759-708-05	s	IC NJM78L05A
IC5	8-759-200-90	s	IC TC4538BF
IC6	8-759-205-78	s	IC TC504013BF
IC7	8-759-200-90	s	IC TC4538BF
L1	1-408-417-00	s	INDUCTOR 47uH
L2	1-408-417-00	s	INDUCTOR 47uH
L3	1-408-417-00	s	INDUCTOR 47uH
L4	1-408-417-00	s	INDUCTOR 47uH
L5	1-408-417-00	s	INDUCTOR 47uH
L6	1-408-417-00	s	INDUCTOR 47uH
L8	1-408-420-00	s	INDUCTOR 82uH
Q1	8-729-122-63	s	TRANSISTOR 2SA1226
Q2	8-729-122-63	s	TRANSISTOR 2SA1226
Q3	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q4	8-729-122-63	s	TRANSISTOR 2SA1226
Q5	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q6	8-729-122-63	s	TRANSISTOR 2SA1226
Q7	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q8	8-729-122-63	s	TRANSISTOR 2SA1226
Q9	8-729-122-63	s	TRANSISTOR 2SA1226

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(VA-80 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q10	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q11	8-729-122-63	s	TRANSISTOR 2SA1226
Q12	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q13	8-729-122-63	s	TRANSISTOR 2SA1226
Q14	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q15	8-729-122-63	s	TRANSISTOR 2SA1226
Q16	8-729-122-63	s	TRANSISTOR 2SA1226
Q17	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q18	8-729-122-63	s	TRANSISTOR 2SA1226
Q19	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q20	8-729-122-63	s	TRANSISTOR 2SA1226
Q21	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q22	8-729-101-25	s	TRANSISTOR 2SC1009A
Q23	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q24	8-729-101-25	s	TRANSISTOR 2SC1009A
Q25	8-729-101-25	s	TRANSISTOR 2SC1009A
Q26	8-729-101-25	s	TRANSISTOR 2SC1009A
Q27	8-729-216-22	s	TRANSISTOR 2SA1162
Q28	8-729-101-25	s	TRANSISTOR 2SC1009A
Q29	8-729-216-22	s	TRANSISTOR 2SA1162
Q30	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q31	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q32	8-729-216-22	s	TRANSISTOR 2SA1162
Q33	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q34	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q35	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q38	8-729-122-63	s	TRANSISTOR 2SA1226
Q39	8-729-122-63	s	TRANSISTOR 2SA1226
Q40	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q41	8-729-122-63	s	TRANSISTOR 2SA1226
Q42	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q43	8-729-122-63	s	TRANSISTOR 2SA1226
Q44	8-729-175-72	s	TRANSISTOR 2SC2757-T33
Q45	8-729-101-25	s	TRANSISTOR 2SC1009A
Q46	8-729-122-63	s	TRANSISTOR 2SA1226
Q47	8-729-101-25	s	TRANSISTOR 2SC1009A
Q48	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q49	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q50	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q51	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q52	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q53	8-729-216-22	s	TRANSISTOR 2SA1162
R1	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R4	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R5	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R6	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R11	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R12	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R15	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R16	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R17	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R22	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R23	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R26	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R27	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R28	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R33	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R34	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R38	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R41	1-216-672-11	s	METAL, CHIP 7.5K 0.5% 1/10W
R43	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R48	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R64	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R65	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R66	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R67	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R77	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R80	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R81	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R82	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R87	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R88	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R89	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R91	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R93	1-216-697-11	s	METAL, CHIP 82K 0.5% 1/10W
R94	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R95	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R96	1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W
R115	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
RV1	1-228-455-00	s	RES, ADJ, METAL 500
RV2	1-228-455-00	s	RES, ADJ, METAL 500
RV3	1-228-455-00	s	RES, ADJ, METAL 500
RV4	1-228-459-00	s	RES, ADJ, METAL 10K
RV5	1-228-455-00	s	RES, ADJ, METAL 500
RV6	1-228-460-00	s	RES, ADJ, METAL 20K
RV7	1-228-458-00	s	RES, ADJ, METAL 5K
RV8	1-228-461-00	s	RES, ADJ, METAL 50K
RV9	1-228-461-00	s	RES, ADJ, METAL 50K
S1	1-571-975-31	s	SWITCH, CHIP
T1	1-427-270-99	s	TRANSFORMER,OUTPUT

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
	1-236-279-31	s	FILTER, MPX
	1-562-873-11	o	CONNECTOR, 2.5C COAXIAL
	1-935-906-21	s	HARNESS (CCU COAX)
C2	1-106-220-00	s	MYLAR 0.1uF 50% 100V
CB1	⚠1-532-681-00	s	CIRCUIT BREAKER 4A 125V
CN1	1-563-907-11	s	CONNECTOR 50P
CN2	1-561-781-21	s	CONNECTOR, BNC, "RET OUT"
CN3	1-561-781-21	s	CONNECTOR, BNC, "GENLOCK IN"
CN4	1-565-072-11	s	CONNECTOR, 4P, FEMALE "DC OUT 10.5-17V"
CN5	1-565-800-11	o	CONNECTOR, 5P, FEMALE "DC OUT 120V"
CN6	1-561-233-21	s	CONNECTOR, 6P, FEMALE "RET CONT"
CN7	1-563-159-11	s	CONNECTOR, 5P FEMALE "INCOM/PGM" (FOR CA-55A:UC)
CN8	1-562-244-00	o	CONNECTOR, 26P, MALE "VTR"
CN9	1-565-908-11	s	CONNECTOR (W/SW), 4P MALE "DC IN 10.5-17V"
CN10	1-509-176-31	s	CONNECTOR, 3P, MALE "MIC IN" (FOR CA-55A:J)
	1-509-184-31	s	CONNECTOR, 3P, FEMALE "MIC IN" (FOR CA-55A:UC,CA-55AP)
CN11	1-565-797-11	s	CONNECTOR, DOUBLE COAXIAL "CCU" (FOR CA-55A:J)
	1-565-801-11	s	CONNECTOR, DOUBLE COAXIAL "CCU" (FOR CA-55A:UC)
	1-565-844-00	s	CONNECTOR, COAXIAL "CCU" (FOR CA-55AP)
CN1F (TO FL-70 BOARD)			
	1-561-875-00	o	HOUSING 2P
	1-560-764-21	o	CONTACT, FEMALE AWG18-24
CN107F (TO HN-106 BOARD)			
	1-562-152-11	o	HOUSING, 7P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN108F (TO HN-106 BOARD)			
	1-569-207-11	o	HOUSING,14P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN109F (TO HN-106 BOARD)			
	1-563-117-11	o	HOUSING, PS 6P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
CN110F (TO HN-106 BOARD)			
	1-562-149-11	o	HOUSING, 4P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN111F (TO HN-106 BOARD)			
	1-562-151-11	o	HOUSING, 6P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN112F (TO HN-106 BOARD)			
	1-562-147-11	s	HOUSING, 2P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN113F (TO HN-106 BOARD)			
	1-562-149-11	o	HOUSING, 4P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN114F (TO HN-106 BOARD)			
	1-562-151-11	o	HOUSING, 6P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN115F (TO HN-106 BOARD)			
	1-562-150-11	s	HOUSING, 5P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN116F (TO HN-106 BOARD)			
	1-562-150-21	o	HOUSING, 5P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN117F (TO HN-106 BOARD)			
	1-563-116-11	o	HOUSING, 4P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
CN118F (TO HN-106 BOARD)			
	1-562-147-11	s	HOUSING, 2P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN119F (TO HN-106 BOARD)			
	1-563-119-11	o	HOUSING, PS 10P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
CN120F (TO HN-106 BOARD)			
	1-563-118-11	o	HOUSING, 8P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
CN121F (TO HN-106 BOARD)			
	1-562-147-11	s	HOUSING, 2P
	1-563-008-11	o	CONTACT, FEMALE, AWG24-30
CN122F (TO HN-106 BOARD)			
	1-569-201-11	o	HOUSING, 8P
	1-569-192-11	o	CONTACT, FEMALE
	1-569-194-11	o	CONTACT, FEMALE AWG24-30
CN123F (TO HN-106 BOARD)			
	1-562-150-11	s	HOUSING, 5P
CN124F (TO HN-106 BOARD)			
	1-562-150-11	s	HOUSING, 5P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN125F (TO HN-106 BOARD)			
	1-562-151-11	o	HOUSING, 6P
CN126F (TO HN-106 BOARD)			
	1-935-856-11	o	HARNESS (1.5CP)
	1-560-163-00	s	PLUG, RF
CN127F (TO HN-106 BOARD)			
	1-935-856-11	o	HARNESS (1.5CP)
	1-560-163-00	s	PLUG, RF
CN128F (TO HN-106 BOARD)			
	1-935-856-11	o	HARNESS (1.5CP)
	1-560-163-00	s	PLUG, RF
CN129F (TO HN-106 BOARD)			
	1-935-856-11	o	HARNESS (1.5CP)
	1-560-163-00	s	PLUG, RF
CN203F (TO VA-80 BOARD)			
	1-562-156-11	o	HOUSING, 11P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN204F (TO VA-80 BOARD)			
	1-562-151-11	o	HOUSING, 6P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN205F (TO VA-80 BOARD)			
	1-562-150-21	o	HOUSING, 5P
	1-563-008-11	o	CONTACT, FEMALE, AWG24-30
CN301F (TO SW-312 BOARD)			
	1-562-148-11	s	HOUSING, 3P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN302F (TO SW-312 BOARD)			
	1-562-150-11	s	HOUSING, 5P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN303F (TO SW-312 BOARD)			
	1-562-148-11	s	HOUSING, 3P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN304F (TO SW-312 BOARD)			
	1-562-154-11	o	HOUSING, 9P
CN501F (TO DC-42 BOARD)			
	1-561-875-00	o	HOUSING 2P
	1-560-764-21	o	CONTACT, FEMALE AWG18-24
CN502F (TO DC-42 BOARD)			
	1-563-116-11	o	HOUSING, 4P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

(FRAME)

Ref. No. or Q'ty	Part No.	SP	Description
CN503F (TO DC-42 BOARD)			
	1-562-147-11	s	HOUSING, 2P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN504F (TO DC-42 BOARD)			
	1-563-117-11	o	HOUGING, PS 6P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
CN601F (TO DC-43 BOARD)			
	1-562-149-11	o	HOUSING, 4P
	1-563-088-11	o	CONTACT, FEMALE, AWG24-30
CN602F (TO DC-43 BOARD)			
	1-563-118-11	o	HOUSING, 8P
	1-563-115-11	o	CONTACT, FEMALE AWG24-28
FB101	1-543-298-11	s	BEAD, FERRITE
FB102	1-543-298-11	s	BEAD, FERRITE
FB103	1-543-298-11	s	BEAD, FERRITE
FB104	1-543-298-11	s	BEAD, FERRITE
J1	1-507-676-00	s	JACK "INCOM"(FOR CA-55A:J, CA-55AP)
J2	1-507-676-00	s	JACK "PGM" (FOR CA-55A:J, CA-55AP)
J3	1-507-251-99	s	JACK "EARPHONE"
RV1	1-237-981-11	s	RES, VAR, CARBON 20K "INCOM LEVEL"
RV2	1-237-981-11	s	RES, VAR, CARBON 20K "PGM LEVEL"
S1	1-570-928-11	s	SWITCH, TOGGLE "POWER ON/OFF"
S2	1-571-368-11	s	SWITCH, TOGGLE "TALK"
S3	1-553-739-21	s	SWITCH, TACTILE "CALL"
S4	1-553-739-21	s	SWITCH, TACTILE "RET1"
S5	1-571-368-11	s	SWITCH, TOGGLE "MIC IN"
VDR1	1-806-504-11	s	VARISTOR ERZ-C05DK820
VDR2	1-806-504-11	s	VARISTOR ERZ-C05DK820 (FOR CA-55A:J, CA-55AP)

SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6772-374-A	s	BELT ASSY, SHOULDER
1pc	A-7513-880-A	o	MOUNTED CIRCUIT BOARD, EX-190
1pc	3-676-269-00	o	CAP (SOCKET SIDE), DUST
2pcs	3-717-823-01	s	COVER, BNC
1pc	3-734-214-01	s	CLAMP, CABLE
2pcs	7-682-548-09	s	SCREW +B 3X8
2pcs	7-682-561-09	s	SCREW +B 4X8

Please see pages D-8 and D-9 for the part numbers of capacitors and resistors that are not listed in the parts list.

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